

**ASSESSMENT OF THE CORRELATION BETWEEN THE AGRICULTURAL
PRODUCTIVITY OF THE PRIMARY PRODUCERS AND
THE AGRIBUSINESS EXPORT PERFORMANCE**



Skopje, 2011



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1. Methodology and Approach

1.1. Objectives

The main objective of this project assignment is to **assess the interdependence of the productivity of the primary producers and the export performance** of the three most significant products supported by the AgBiz Project, used as an input in the agribusiness sector (both for finished products for fresh consumption and processed products).

The specific objectives of the assignment are:

Objective 1: To assess the optimal role of the small scale producer (small scale producer defined as a producer on at least 1 ha that sells at least 50% of the annual production) in the enhancement of the export competitiveness of tomato & pepper (both for fresh consumption and processing industry) and table grapes.

Objective 2: To propose specific interventions that small scale farmer supporters can implement in order to achieve their optimal role in the enhancement of the export competitiveness of tomato & pepper (both for fresh consumption and processing industry) and table grapes

1.2. Approach

Given the time and financial constraints vs. the potential scope of a detailed productivity study analysis, a limited and abridged analysis in scope that is narrowed down to an analysis of three products (tomato, pepper and table grapes) has been implemented. The small farm primary production provides the majority of the necessary raw material for the agribusiness sector which is the primary target of the AgBiz Program. Improving the productivity of the small scale farmers will consequently increase the quality and quantity of the products and will enable more efficient production of a higher value added export product. ***The agricultural productivity as a ratio of agricultural output and agricultural input can be improved by increased value of the output, cost reduction of the input or input improvement.***

Through comparison of the output value with different input values, we have been able to show various indicators of so called partial factor productivity (such as labor, land, energy, etc.). Deeper analysis of all other parameters affecting productivity, (technology, education and similar) was not possible in this productivity analysis given the time and financial constraints of this research. However, with this analysis we have made an attempt to factor in and consider the majority of variables that have an effect on productivity as an effort to provide more valid findings and recommendations for further interventions.

1.3. Methodology

1) Desk Research

The desk research has provided valuable quantitative data which have enabled the quantitative analysis of the production and the productivity of specific agricultural products through the analyzed statistical data.

The quantitative trend analysis of the production; yield; export value; export quantity; average export price; dominating export markets, etc. in the last decade was based on official secondary data from the publications and records of the State Statistical Office of R. Macedonia (SSO), the Customs Office of R. Macedonia (CO) etc. Other publications of the SSO, regarding the agriculture account of Macedonia, the Agricultural Census from 2007, etc., were also taken into consideration to further add value to the analysis.

The abundance of reports and analyses in the area of agricultural production and agribusiness in the last three years were used as secondary data sources for qualitative data collection. The team has reviewed various research papers, reports, studies and analyses of the state, donors, research and education institutions/organizations, as secondary data with high significance for the analysis. The various donor projects including the AgBiz Program, MAASP, SFARM and research studies and analyses from the database of EPICENTAR International has provided qualitative data on the possible factors affecting the production efficiency considering both the 1) intermediate inputs and 2) factors affecting productivity, which are difficult to measure and express in values such as technology, education, qualifications, human capital, etc.

In addition, a simple analysis of the efficiency and productivity, through the comparison of small scale farmers' variable production costs in Croatia and Slovenia with the domestic production has been undertaken. As these are the markets Macedonia was targeting in the past and they are similar to the EU markets, this comparative analysis provides valuable data needed for this research.

2) Field Research

The field research has covered 12 structured interviews with relevant stakeholders from the agribusiness sector and 3 focus group discussions with 25 participants representing small scale farmers of the three selected products (pepper, tomato and grapes).

The field research comprised of structured interviews (with both open ended and closed ended questions) was used to determine / confirm the cost structure and income distribution of the larger producers and compare the findings with those of the small scale producers. In addition, the structured face-to-face interviews enabled the approximation of the size of the market supplied by the small scale vs. the large scale producers as suppliers of raw materials. The field research helped us to understand the necessary measures and interventions that have to be undertaken in order to increase the export competitiveness of the three selected products.

The interviews were conducted by the professional and experienced personnel of EPICENTAR, which resulted in the collection of qualitative and quantitative data that we used during the finalization of findings and drafting the recommendations.

3) Focus Group Discussion

EPICENTAR has organized three focus group discussions with 25 participants, one per product in three different regions of the country. The meetings were organized in cooperation with the Federation of Farmers of Republic of Macedonia, through their nationwide network, and aimed at further defining the productivity indicators on a small scale producer level, discuss the findings obtained by EPICENTAR, define possible manners of increasing the productivity of the small scale producers and identify the income and margin distribution. In specifics the focus group discussions have covered: analyses of the income and cost analyses per product unit and income distribution;

analyses of the present situation; the most important factors influencing the productivity and export performance as well as measures that could affect the productivity and efficiency of the production to increase the competitiveness in line with the competitive characteristics demanded on the EU markets. In addition, the FG discussions have provided constructive opinions through focused discussions on the correlation between the export and the productivity of the primary producers and the possible measures and effects on the enhancement of the export value through increased value for the farmers and conformance with the export market demands and needs.

The identification of the skills related to technology and affordability and access to new technologies was also covered in the FG discussions as well as the adoption of new technologies that could cause productivity increase. The discussions also identify the problems associated with the social welfare of small farmers.

Through the usage of all three methodological tools, EPI CENTAR International has made an attempt to understand as much as possible ***how much the small scale producers and their productivity contributes to the export performance (for the three specific products) and what the potentially most significant measures are (aimed at the small scale producers) that could enhance the agribusiness export competitiveness, which is presented in this report.***

2. Agriculture Productivity in the country

Macedonia is a landlocked country, covering an area of 25.713 km². Its natural advantages (fertile soil and favorable climate) encourage agricultural development. The agricultural land in the Republic of Macedonia amounts to 1.275.000 ha (1999-2004 average), or approximately 50% of Macedonia's total territory. The agriculture plays a crucial role in the contribution to the national economy (GDP) by 12% compared to the 1,6% to EU-25¹. The process of transformation of the state ownership (around 95%) in the agricultural sector goes slowly and is not yet finalized. The most often used method in this process was by privatization or by dividing the so-called "agrokombinati" into

smaller units, which were then privatized. This process is also followed by the negative trend in the total cultivated arable land. According to the last agricultural census in 2007 the total used arable land by the farmers was around 400.000 ha, compared to the 537.000 ha in 2006 (MAFWE, Annual Agricultural and Rural Development Report, 2007). Around 80% of the total 400.000 ha are owned or rented by around 180.000 individual farmers. The remaining 20% is state owned land and it is cultivated by 136 agricultural enterprises (MAFWE, NARDS 2007-2013, 2007). This figure stresses out the importance of the small scale farm households for the overall competitiveness of the agricultural sector.

Even though most of the arable land belongs to and is cultivated by individual farmers, the effective use of agricultural land in Macedonia is threatened by the serious problem of parceling and fragmentation stemming from previous limitations on usable areas and ownership, inheritance customs, as well as the long tradition of informal relations in the land market.

In 1994, there were around 178.000 registered agricultural households cultivating approximately 460.000 ha, with the average size of the individual farm of 2,5 - 2,8 ha, with internal parceling of 0,3 - 0,5 ha in fields and diversified production structure (SSO, Census, 1994). Around 40% of the private farms belong to the small-scale farm production group and own less than 2 ha land (also fragmented). The lack of land, followed by the lack of social security, keeps supporting the process of fragmentation and diversifies production in small plots.

"Agricultural productivity growth" can be defined as agricultural outputs grow at a sufficiently rapid rate to meet the growth of demands for food and raw materials arising out of steady population growth. Researchers and policy makers are interested in measuring not only the levels and trends in agricultural productivity but also what sources are attributed to the agricultural productivity growth. In the early studies of the measurement of productivity growth, index number techniques were used to construct productivity growth indices to measure the productivity growth. This approach is very valuable, but it has a disadvantage because it requires data on prices and quantities as well as assumptions concerning the behavior of producers and the structure of technology. In addition it can hardly provide what the sources are attributing to productivity growth which is of broad interest to researchers. There are new empirical techniques known as non-parametric and parametric approaches to measure the productivity growth, however each new approach cannot fully cover the needs and issues that have appeared in the previous one."

(Total Factor Productivity growth in EU Agriculture – Faculty of Economics, Institute of Agricultural Development in Central and Eastern Europe Germanv 2009)

¹ (MAFWE, NARDS 2007-2013, 2007)

3. Agriculture holdings, export trends in the last decade for tomato, pepper and table grapes

3.1. Agriculture holdings

In accordance with EU Regulation (EC) No 1166/2008, the State Statistical Office of the Republic of Macedonia conducted the Farm Structure Survey in the period 1-15 June 2010, for the first time, as a structural survey on agricultural holdings that is the basic statistical survey in the field of agriculture, which ensures comparable data on agricultural holdings.

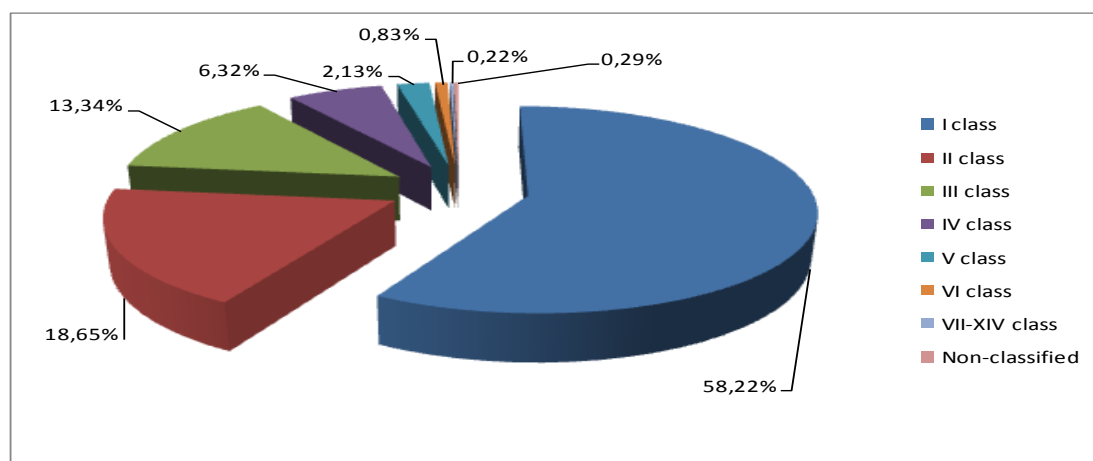
According to the farm structure survey data, the total number of agricultural holdings in 2010 was 192.082, which used 282.830 ha agricultural land. The average area of utilized agricultural land per holding was 1.47 ha. These data significantly deviates from the previous available data especially those related to the average plot and the total used arable land by these holdings specified in the agricultural census of 2007.

The classification of agricultural holdings is based on the type of farming and economic size of the holdings. The agricultural holdings according to the economic size are classified in 14 categories.

Class	Limits in euro	Class	Limits in euro
I	up to 1 999 euro	VIII	from 100 000 to 249 999 euro
II	from 2 000 to 3 999 euro	IX	from 250 000 to 499 999 euro
III	from 4 000 to 7 999 euro	X	from 500 000 to 749 999 euro
IV	from 8 000 to 14 999 euro	XI	from 750 000 to 999 999 euro
V	from 15 000 to 24 999 euro	XII	from 1 000 000 to 1 499 999 euro
VI	from 25 000 to 49 999 euro	XIII	from 1 500 000 to 2 999 999 euro
VII	from 50 000 to 99 999 euro	XIV	over 3 000 000 euro

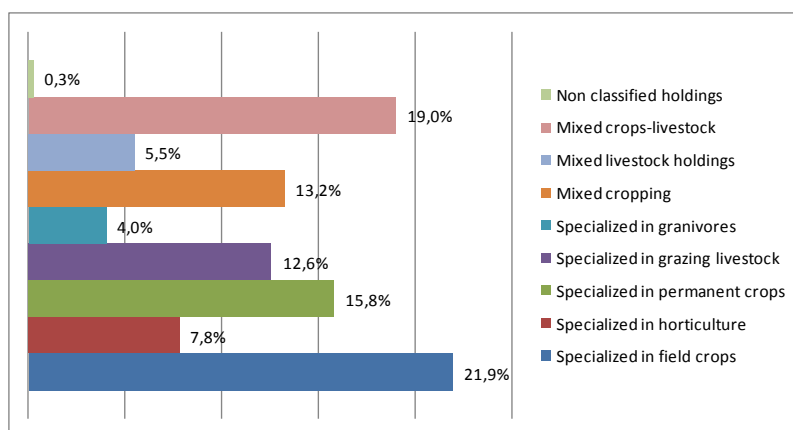
Table 1: Classes of agricultural holdings based on the economic size of the holdings (value of production), SSO, 2010

In this classification, 58,2% are classified in the first class, (value of production up to 2.000 euro), 18,65% are in the second class, 13,34% in the third class, 6,32% in the fourth class, and 2,13% in the fifth class. Only 0,83% are holdings that have from 50.000 -100.000 Euros production value, while 0,22% are in the category with a value over 100.000 Euros. This data confirm that the majority of the agricultural holdings operations could be considered as a small scale economic activity. Only 1% of the holdings have a production value over 50.000EURO. This fact has to be considered when we discuss the improvement of the productivity of Macedonian Agriculture since the vast of majority of farmers belongs to the small scale agricultural holdings.



Graphic 1: Distribution of agricultural holdings by economic size classes, SSO, 2010

According to the **type of farming** the largest portion of the holdings belong to the specialized in field crops production (21,9%), followed by mixed crops-livestock holdings (19%). The smallest portion is the holdings specialized in granivore livestock breeding ²(4%).



Graphic 2: Distribution of agricultural holdings by the type of farming, SSO, 2010

The number of business owned farms, is 297 in comparison to 192.378 individually owned farms, however most of the business owned farms belong to the highest economic category farms, making a production value of more than 100.000 Euros per year and in some rare cases even over 3.000.000 Euros per year (category XIV).

		Total	Individual agricultural holdings	Business entities
1	Specialized in field crops	42.192	42.143	49
2	Specialized in horticulture	15.013	14.995	18
3	Specialized in permanent crops	30.392	30.347	45
4	Specialized in grazing livestock	24.199	24.169	30
5	Specialized in granivore	7.760	7.730	30
6	Mixed cropping	25.456	25.438	18
7	Mixed livestock holdings	10.556	10.553	3
8	Mixed crops-livestock	36.552	36.536	16
9	Non classified holdings	555	467	88
	Total	192.675	192.378	297

Table 2: Distribution of agricultural holdings by type of farming and by ownership status, SSO, 2010

² According to the EU classification (EU regulation No. 1242/2008) this type includes the pigs and poultry.

Individual agricultural holdings participate with 86.9% in creating the total standard output. The biggest contributors to the formation of the total standard output are mixed crops-livestock agricultural holdings with 21.4%, while the smallest contributors are holdings specialized in field crops with 6.7%.

The largest number of the farms in the country is family-farms where the main workforce is the family itself with a seasonal engagement of additional workers, mostly in the seeding or harvesting operation of the production. The number of household members working at individual agricultural holdings is 435.467 on the national level, out of which 58% are man, and 42% are woman.

Region	Number of persons		
	Total	Male	Female
Republic of Macedonia	435.467	252.759	182.708
Vardar region	55.953	31.236	24.717
East Region	54.013	32.310	21.702
Southwest Region	47.225	25.977	21.248
Southeast Region	67.816	37.270	30.546
Pelagonia Region	68.541	37.494	31.047
Polog Region	62.228	37.995	24.233
Northeast Region	37.602	24.267	13.335
Skopje Region	42.089	26.210	15.880

Table 1: Household members who work at individual agricultural holdings, SSO, 2010

The seasonally engaged labor at individual agricultural holdings is 141.439 persons, where 59% are man and 41% are woman. The number of seasonally engaged labor represents counting of persons involved in the agriculture production, without precise definition of the number of hours spent. In that respect the “real time” spent can be calculated as around 30% of the full time worked, meaning that the number of seasonally engaged persons is equivalent to 42.432 persons (30% of 141.439).

Region	Number of persons		
	Total	Male	Female
Republic of Macedonia	141.440	84.663	56.777
Vardar region	54.289	21.406	32.883
East Region	6.631	4.709	1.922
Southwest Region	3.988	3.649	339
Southeast Region	24.256	14.726	9.530
Pelagonia Region	3.858	1.682	2.176
Polog Region	21.238	17.085	4.153
Northeast Region	14.704	13.366	1.338
Skopje Region	12.476	8.040	4.436

Table 2: Seasonally engaged persons by the individual agricultural holdings, SSO, 2010

The table below illustrates the contribution of different types of farms in the total agriculture output. As it could be reviewed, the portion of specialized farms for field crops production is 6,7%, while their participation in the total agriculture production value is 21,9%. The second type of farms by the level of participation of the production value in the total agriculture production are the mixed

farms (21,4%), followed by the specialized grazing livestock farms (20,9%). The smallest participation in the total agriculture production value has the specialized granivore farms with only 4%.

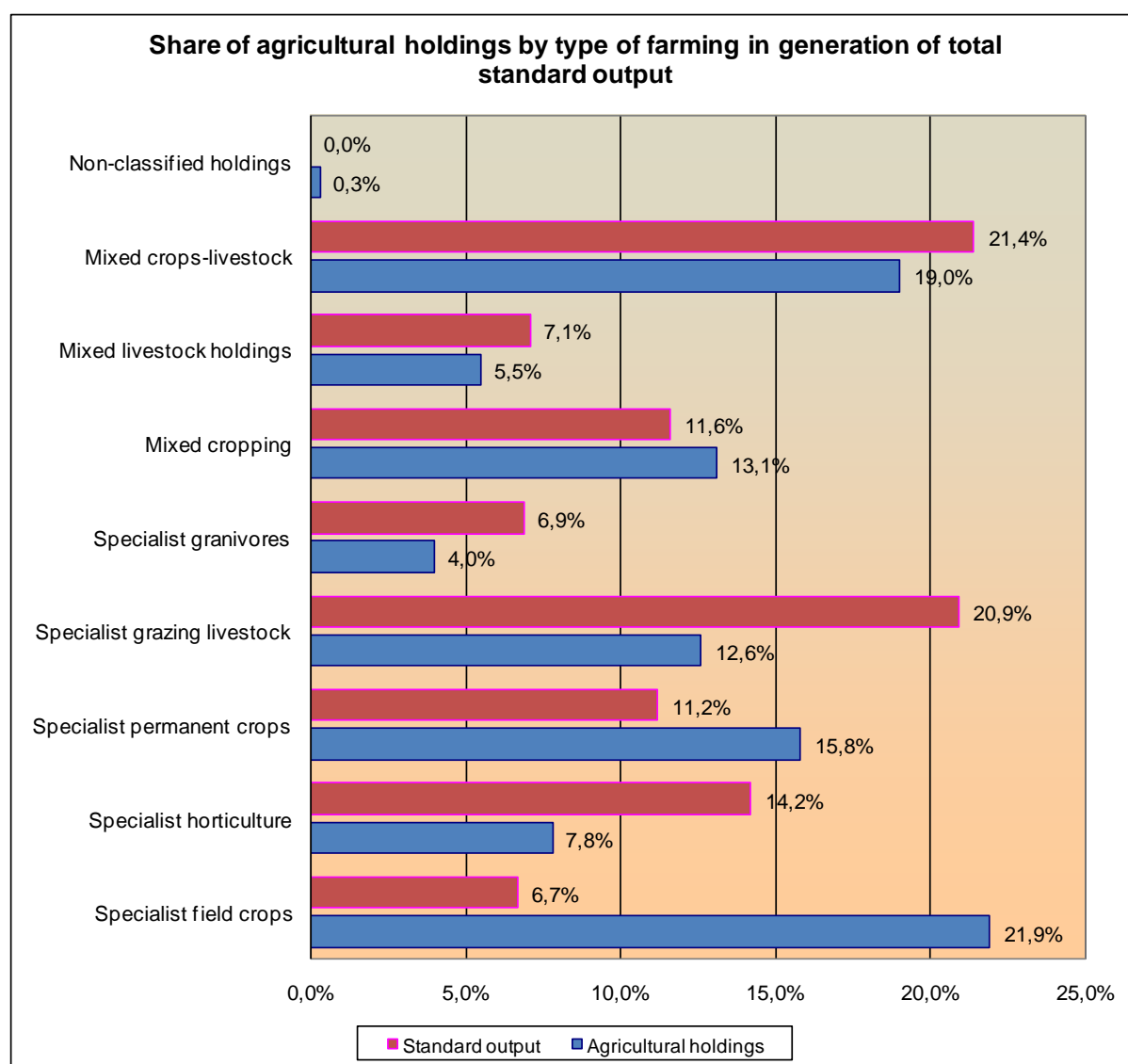


Table 3: Share of holdings by type of farming in the generation of total standard output, SSO, 2010

The Macedonian farms in general are small compared to the EU countries, around 5 times smaller than the EU average. The annual working units calculated are 15% higher than the EU average, and the utilization of land is 8 times less than the EU average. The rented land as indexed category in hectares is also very small, around 1.6 in comparison to 18.0 of the EU-25.

The small size farms are not economically viable and are non competitive to the EU average. The low prices of energy costs and relatively low daily fees for the seasonal work make the Macedonian production still competitive to some markets, but without decrease of the overall costs by enlargement of farms and improvement of the production technology, the country production will become less and less profitable and market oriented.

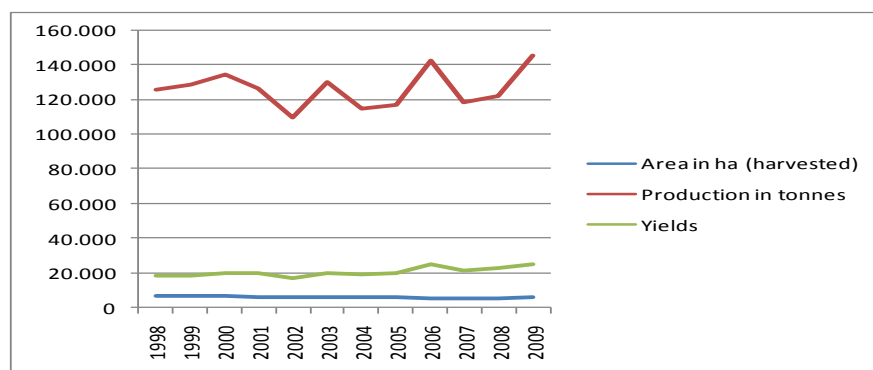
	Economic size (ESU ³)	Annual working units ⁴	Utilized agricultural area - UAA ⁵ (ha)	Rental UAA (ha) ⁶
FADN code	(SE005)	(SE010)	(SE025)	(SE030)
Greece	9,4	1,2	6,3	2,5
France	75,9	1,9	73,7	61,1
Hungary	17,1	1,9	49,4	33,0
Italy	25,4	1,4	16,8	6,3
Netherlands	127,2	2,4	31,2	12,6
Poland	9,4	1,8	15,7	4,0
Sweden	55,7	1,4	93,3	45,7
Slovenia	7,3	2,0	12,7	4,3
EU-25	32,7	1,7	34,3	18,0
Macedonian sample	5,9	2,0	4,2	1,6

Table 4: Comparison of the Macedonian farms with the EU countries, COSTS AND INCOMES OF FAMILY FARMS IN MACEDONIA IN A FADN COMPATIBLE ACCOUNTING AND INFORMATION SYSTEM; MARTINOVSKA-STOJČESKA A., DIMITRIEVSKI D., ERJAVEC E., 2009

Production and export trends

3.1.1. Tomato

The production of tomato in the last decade increased by around 20.000 tons from 1998 – 2009, while in the same period the area harvested had minor changes. There are important fluctuations in the production trend over the previous decade, but in overall, the yields are increasing, mostly as a result of modernized production technology.



Graphic 3: Production of tomato in the last decade, SSO, 2010

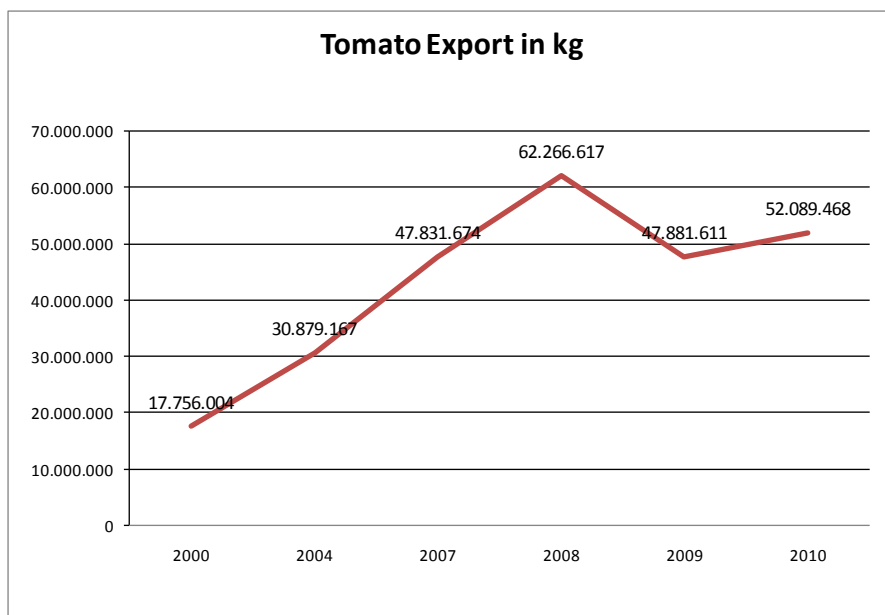
The tomato export rose to around 62.000 tons in Y2008 from only 18.000 tons in Y2000, however the average quantity is between 47.000 tons in Y2007 and 52.000 tons in 2010.

³ 1 ESU = 1200EURO farm value (including capital investments and production)

⁴ AWU = Full time employment per holding

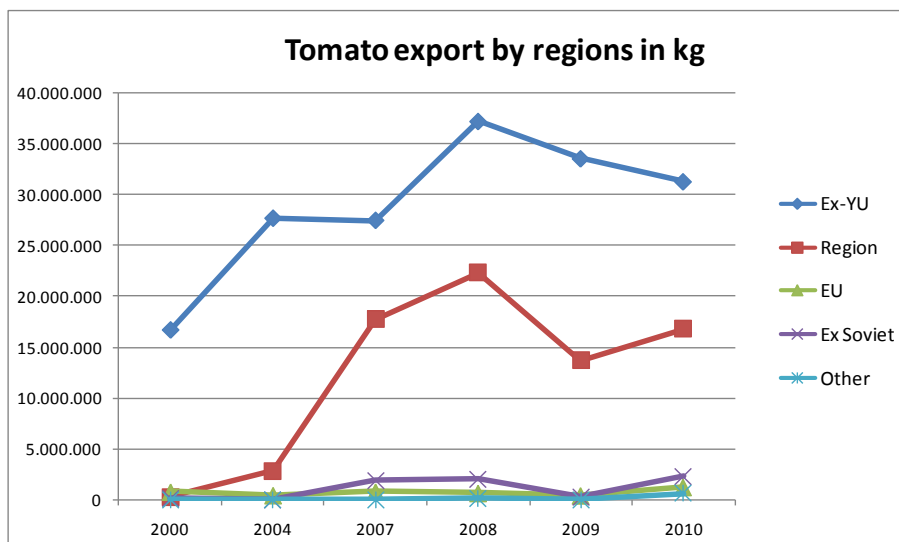
⁵ UAA = Utilized Agricultural area in Ha per holding

⁶ Rental UAA = Rented Agricultural land in Ha per holding



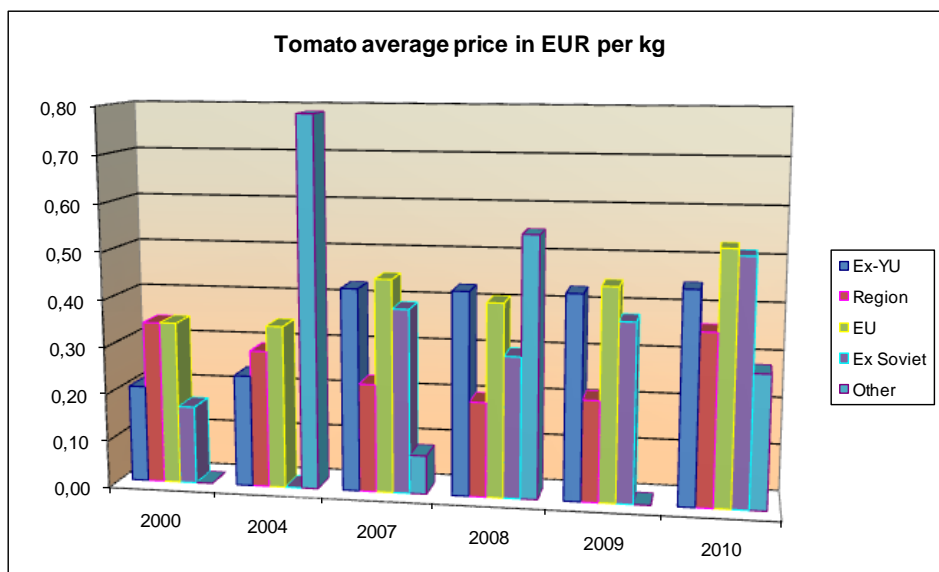
Graphic 4: Tomato export in kg for the last decade, SSO, 2010

The most important tomato destination is still the Ex-YU market that is slowly decreasing, and partly being replaced by the regional and EU market. In the recent years there is some growth on the ex soviet market, but the Ex-YU market remains dominant for the Macedonian tomato production.



Graphic 5: Tomato export by regions in kg, SSO, 2010

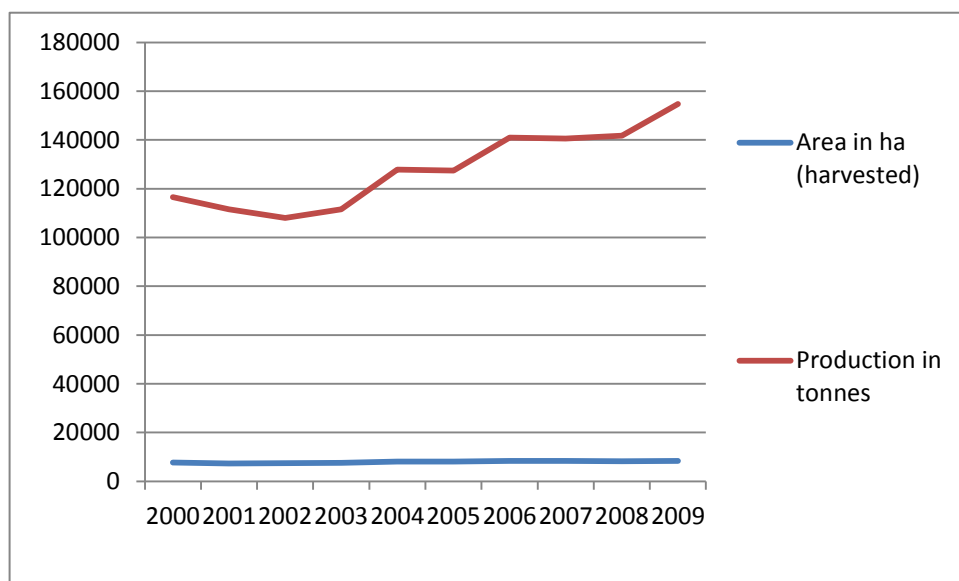
The average selling price by regions illustrates that the selling price is more or less permanent on the Ex-YU markets around 0,40 Euro/kg in average, it has the largest fluctuations on the regional market (Romania, Greece, Albania, Bulgaria) from 0,80 Euro/kg in 2004 to 0,40 Euro/kg in 2010, while the price on the EU and Ex soviet market is growing. These data additionally confirm that besides the EX-YU market, the EU and Ex soviet markets are becoming more attractive and interesting for the Macedonian producers..



Graphic 6: Tomato average price in EUR per kg, SSO, 2010

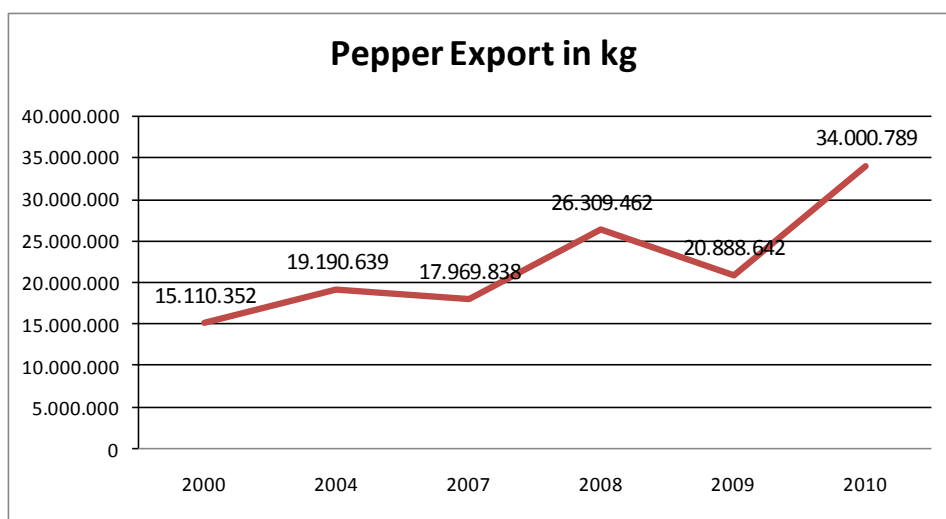
3.1.2. Pepper

The production of pepper in the last decade increased from 120.000 tons in 2000 to around 154.700 tons in 2009. At the same time, the area harvested remained the same, while the yields had minimal increase.



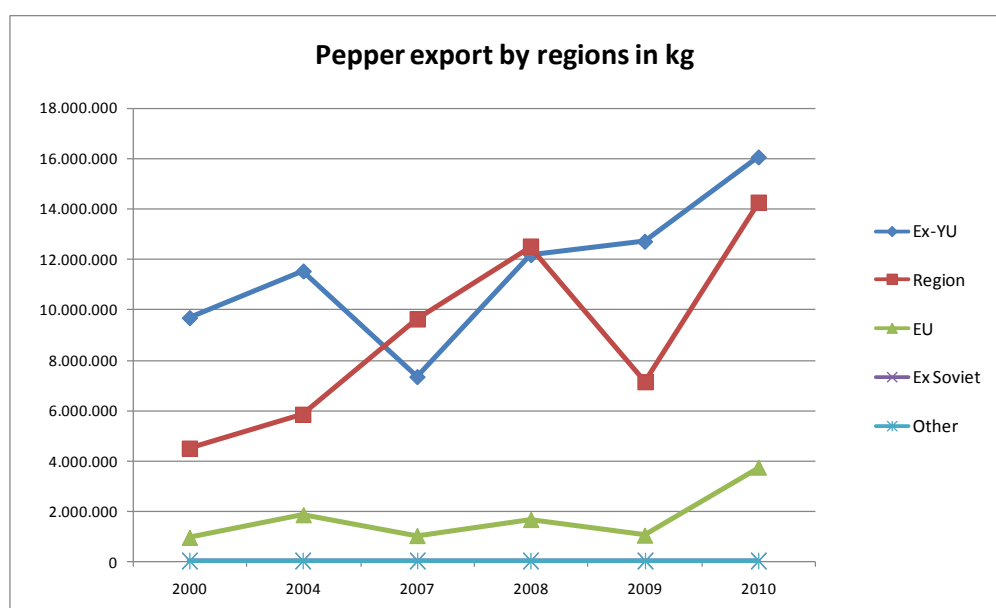
Graphic 7: Production of pepper in tones, SSO, 2010

The pepper export in kg more than doubled from Y2000 to Y2010, reaching around 34.000 tons in 2010. The export of pepper in the last three years represents between 18-24% of the total production.



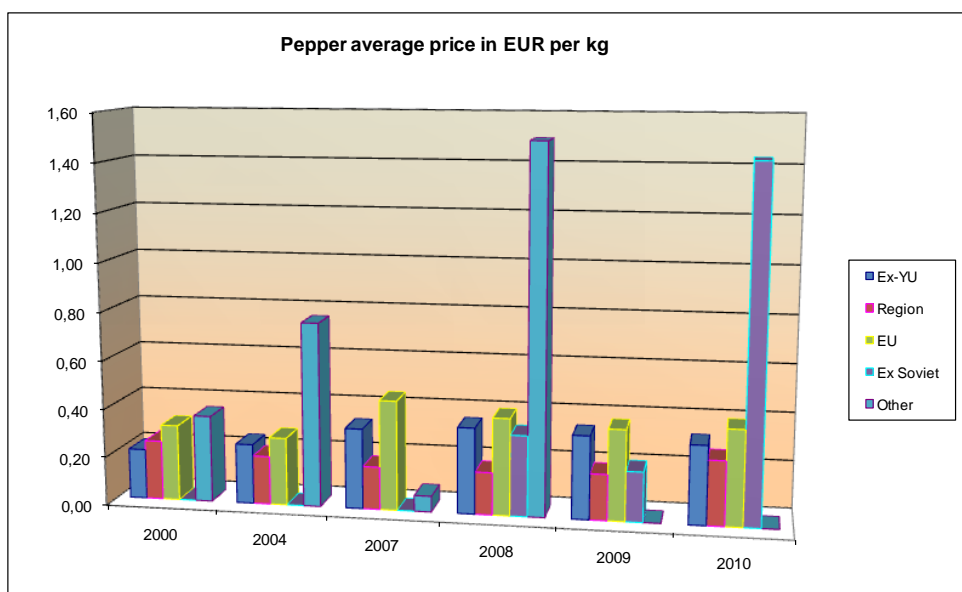
Graphic 8: Pepper Export in kg, SSO, 2010

The export has increased significantly on all export markets; however, in the last two years the quantity exported to the regional market has equaled that exported to the Ex-YU market. In addition, the EU market is increasing, while the Ex –soviet and other markets remain very restricted in the total pepper export.



Graphic 9: Pepper export by regions in kg, SSO, 2010

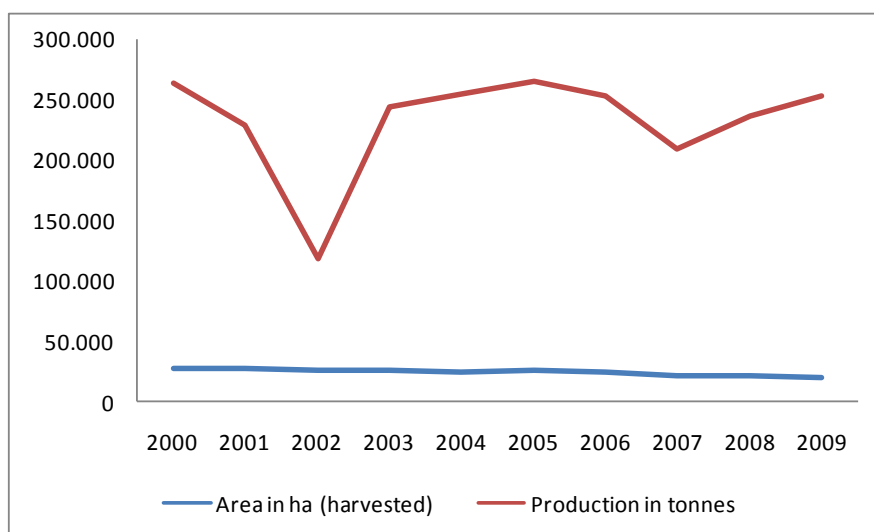
The average selling price by regions illustrates that the price is stable on the Ex- YU market and increasing on the EU and Ex-soviet market. The largest fluctuations of the price are on the regional markets.



Graphic 10: Pepper average price in EUR per kg, SSO, 2010

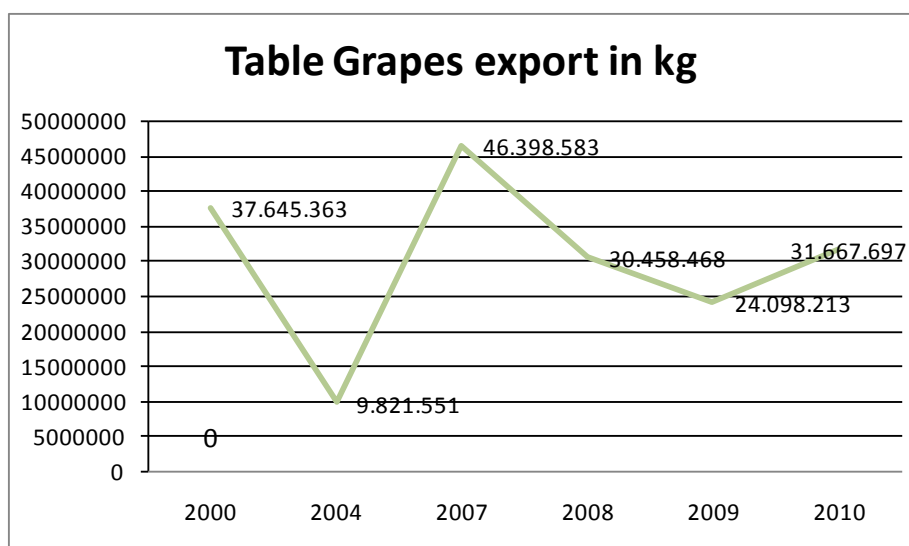
3.1.3. Table Grapes

The grapes production in the last decade increased from 120.000 tons in 2000 to around 254.000 tones in 2008. In the same period, the area harvested remained the same.

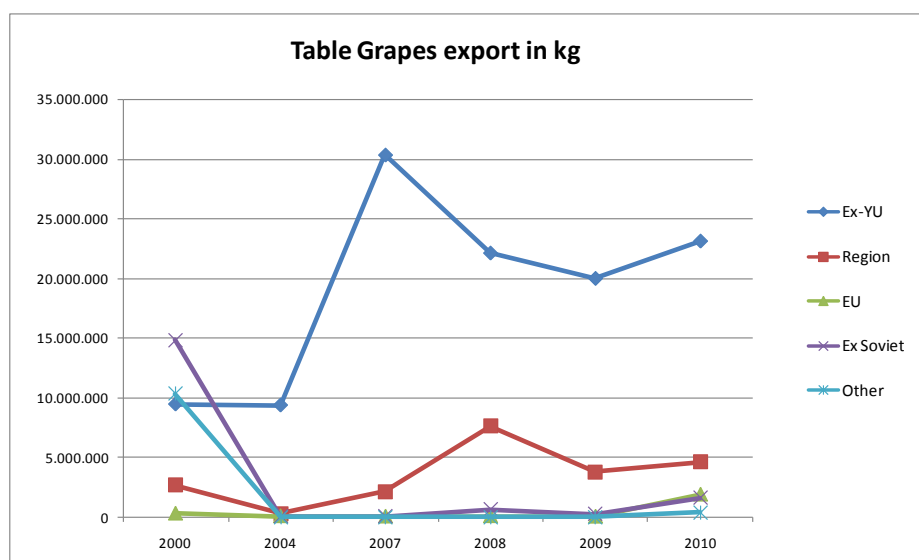


Graphic 11: Grapes production in tones for the last decade, SSO, 2010

The export of table grapes is increasing from Y2004 onwards reaching around 32.000 tones in 2010, still not reaching the record from Y2000 when the export quantity reached 37.000 tons.

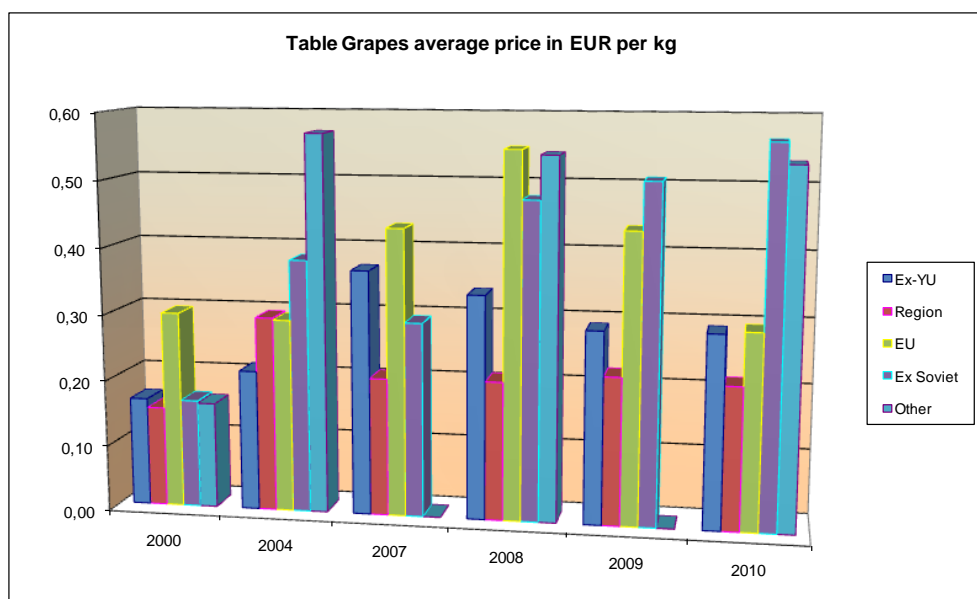


Graphic 12: Table Grapes export in kg for the last decade, SSO, 2010



Graphic 13: Table Grapes export by regions in kg, SSO, 2010

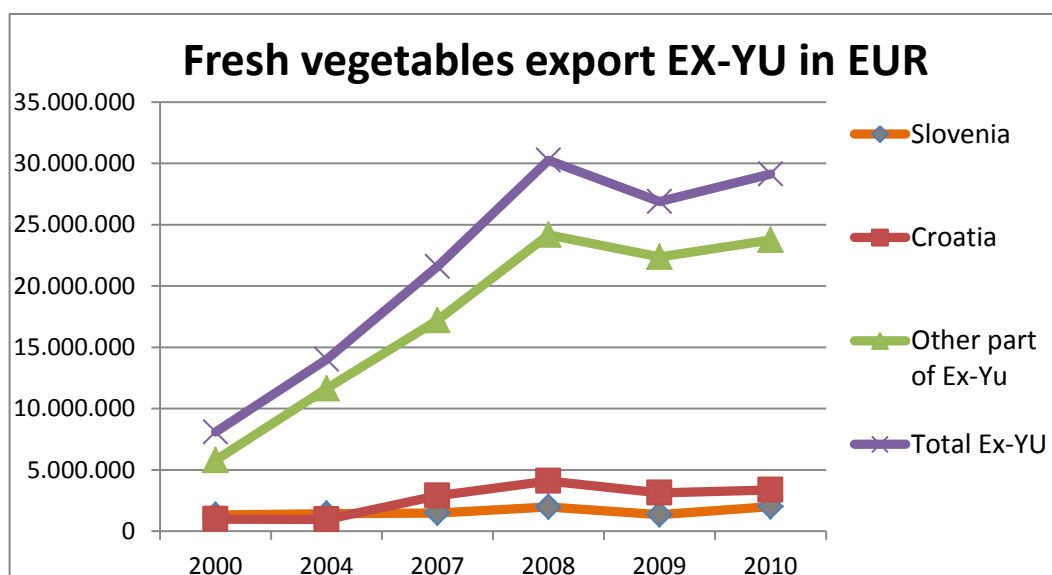
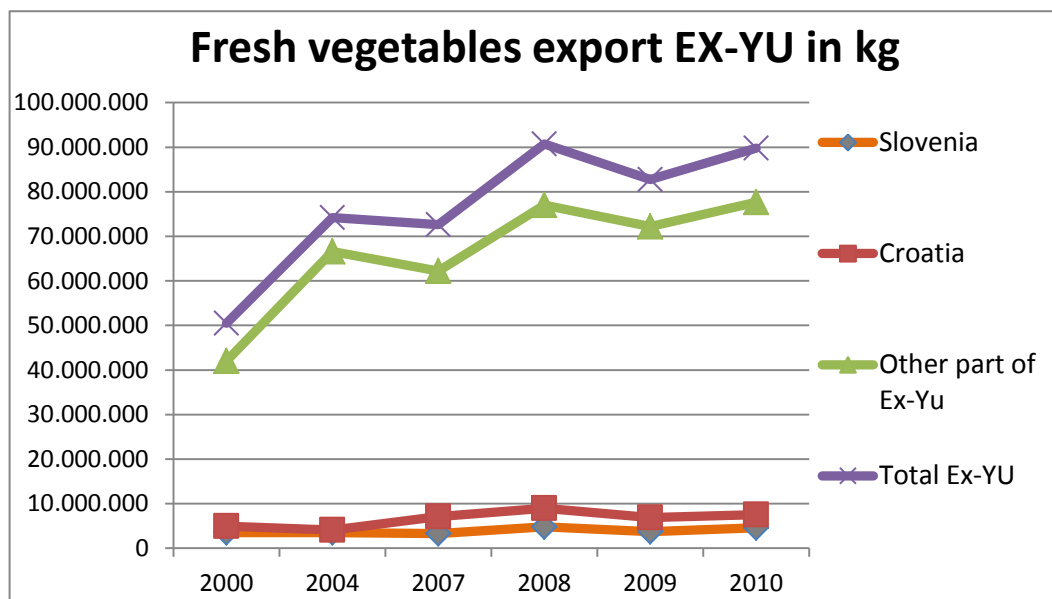
The most significant markets for table grapes are the Ex-YU market, regional and EU markets. The average selling price is fluctuating on all export markets; however, the largest fluctuations are on the regional market. The price decreased in the last three years both on the Ex-YU and EU markets, and had a slight increase on the Ex-Soviet market.



Graphic 14: Table grapes average price in EUR per kg, SSO, 2010

3.2. Slovenia, Croatia and other Ex-YU export market trends

When it comes to the Ex-YU market, the structure of the market trends among the countries seem to be changing, with a decrease of the export to Slovenia and Croatia, and substitution of these quantities with the markets from the other parts of Ex-YU, mainly Serbia and Kosovo. This trend illustrates that the differences between the market requests and the Macedonian supply are becoming greater in terms of size, variety and quality of the products. In that respect, Macedonia has lost a large part of these markets, and the export to Slovenia and Croatia of tomato and fresh vegetables in general is incidental, mostly in the high summer tourist season on the Adriatic Coast.

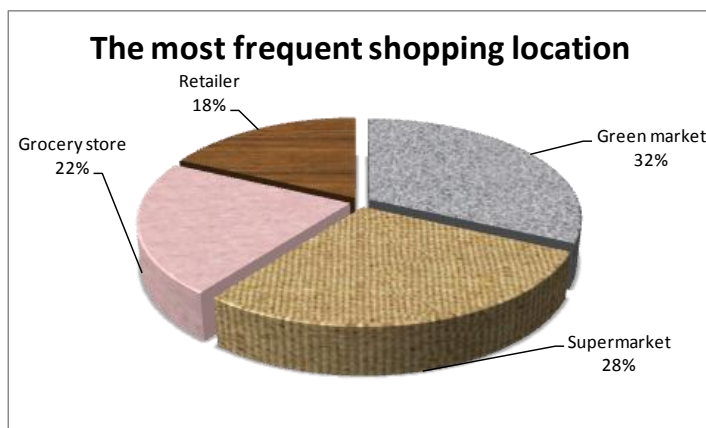


Graphic 15: Fresh Vegetable export in EX-YU markets in kg and EUR

The products requested on this market are mostly long-shelf, smaller size and standardized, which are suitable for large supermarkets, where most of the customers purchase fresh fruits and vegetables. The trend of changing customer habits and replacing the greenmarkets with the supermarkets started in Slovenia and Croatia almost two decades ago, which was not adequately recognized by our exporters and producers so, eventually Macedonian production was replaced with products from Turkey, Spain and Greece.

The situation is becoming disconcerting as this trend is now continuing on the Serbian markets, where the supermarkets are the first choice for most of the customers in purchasing fresh fruits and vegetables.

A recent research⁷ undertaken by EPICENTAR International on the Serbia market has illustrated that most of the buyers (32%) still purchase fruits and vegetables “on the green market”, while 28% prefer the supermarket. The grocery stores were selected by 22% of the respondents, and the retailers-small shops by 18% of the respondents.



Graphic 16: The most frequent shopping location, EPICENTAR International Market Research in Serbia, 2010

The conclusion at this point is that in the larger cities almost 1/3 of the purchase of fruits and vegetables is performed at the green market, and 1/3 in the supermarket. The customer habits have changed in the last decade, not only in Serbia but in the whole region, where as a result of changes in the pace of life, the shopping became a social activity that takes place in closed areas, malls or large supermarkets that offer fresh and selected fruits and vegetables during the whole day. However, the green markets still remain important shopping locations, especially for the group of consumers over the age of 65.

The overall conclusion linked to this part is that consumers in the target areas recognize the supermarkets as their first choice for purchasing fresh fruits and vegetables products; the supermarket emerges in the customer's perception as the best choice for this kind of products. The greenmarket still remains an important shopping place; however, it gradually loses the importance it had in the previous years.

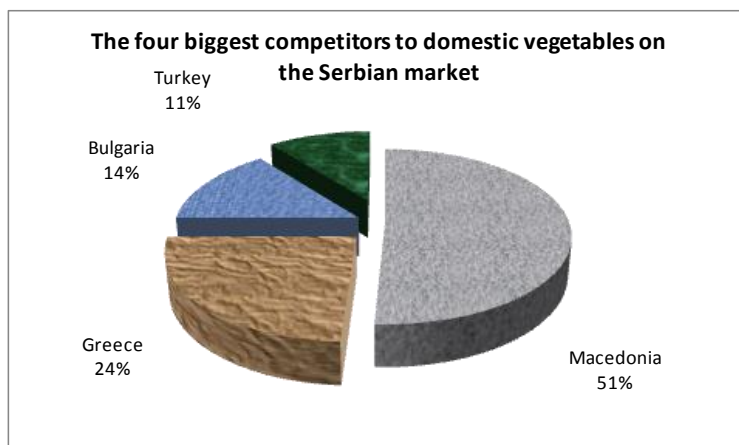
⁷ The Market Research was undertaken in order to understand the specifics of the local market and its requirements related to the fresh fruits and vegetables VC and to compare the local production with the imported products. The Market Research was realized in four cities in Serbia: Vranje, Leskovac, Nis and Belgrade with over 1.400 respondents. The survey was conducted at two different locations in each of the cities: supermarket and greenmarket.

When it comes to the quality of the products, one of the most important parameters of fruits and vegetables, most of the respondents believe that the products have the best quality on the greenmarkets (34%), followed by supermarkets (29%), then the grocery stores (24%) and the retailers (13%). The results of this question vary according to the place of the survey; however, the largest portion of the consumers' trust concerning the quality of the products is still given to the greenmarkets.



Graphic 17: Best quality of the products, EPICENTAR International Market Research in Serbia, 2010

The Serbian consumers identify Macedonia as the biggest competitor on the market, followed by Greece, Bulgaria and Turkey. Out of the four biggest competitors, Macedonia covers 51% of the respondents' selections, Greece 24%, Bulgaria 14% and Turkey 11%.

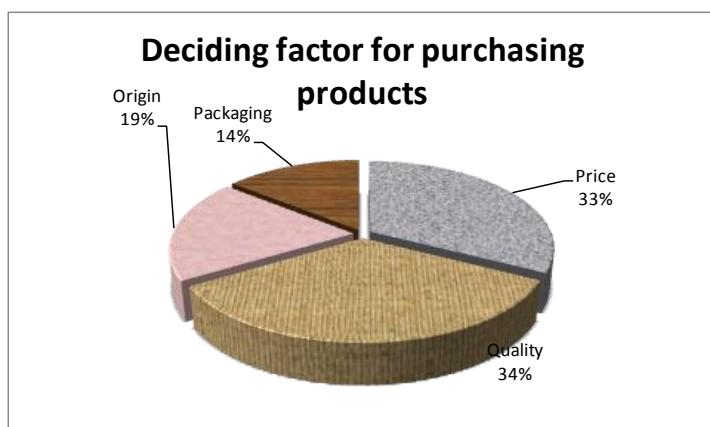


Graphic 18: First four countries for vegetables, EPICENTAR International Market Research in Serbia, 2010

These graphic presentations illustrate the real situation on the market, since the identified countries are the largest producers of fresh fruits and vegetables in the region. On the other hand, the ex Yugoslavian links and living in one country (Yugoslavia) helped in recognizing Macedonia as a leading country of quality vegetables. This traditional links still exist and the largest export of Macedonian fresh vegetables is still in Serbia.

The factors for purchasing the products on the Serbian market included quality, price, origin and packaging. From the factors listed, the quality of the products was the most important for 34% of the respondents and only 1% more than the price. According to the results, the consumers considered the origin and packaging of fruits and vegetables less important factors. In overall, the

price and quality balance, “value for money”, is always the most important element for the consumers.



Graphic 19: The deciding factors for purchasing fresh fruits and vegetables, EPICENTAR International Market Research in Serbia, 2010

The key note at this point is that the Macedonian fresh agricultural products are loosing the Serbian market, still slowly, but much faster than the period the country needs in order to replace the production varieties and production technology in order to respond to the “new market requirements”. In overall, the Macedonian product characteristics satisfy poorly more and more markets and in that respect, the access to various markets is limited as well as the export itself.

This is one of the most important factors related to the overall competitiveness and productivity, as the inappropriate variety, will make the agricultural sector not market oriented and the products value will decrease. This might lead to total non-productivity of the specific crop production as the market value; the buy out of the products will not be able to cover the production costs.

In this respect, the identification of the right variety of the specific crop is the priority activity in beginning of any agriculture production. There is a need for planned, organized production of specific variety and production technology that, at the moment, could be satisfied only by the larger farms, business entities mainly. The small size producers should require additional support and efforts in the process of reorganization, planning and contracting production for the export markets.

When farm family income indicators are compared on a farm level, the Macedonian holdings achieve the lowest average value when compared to the EU countries. The Macedonian farmers are facing major challenges in the EU pre-accession period. The expected effect of EU-integration process is that the structure of the holdings will gradually change towards larger, primarily commercial and competitive farms; subsequently the income of farms will improve and move closer to EU levels, at least to those of the countries that joined in the last two enlargement cycles. The subsistence farmers will not gain a lot from the accession, especially if the regional and rural development policy does not increase employment opportunities⁸).

One of the first constraints in this process is enlargement of the production areas, optimization of costs and efficient use of the resources, which can be achieved only through associating the producers in producer groups or cooperatives. Further, the investments in agricultural holdings or

⁸ COSTS AND INCOMES OF FAMILY FARMS IN MACEDONIA IN A FADN COMPATIBLE ACCOUNTING AND INFORMATION SYSTEM; MARTINOVSKA-STOJČESKA A., DIMITRIEVSKI D., ERJAVEC E., 2009

cooperatives, targeting farm modernization, reconstruction and renewal of the assets, supported by the national agricultural policy and the support funds, will increase the competitiveness of Macedonian farms and ultimately improve the farm income.

4. Production prices of the three selected products for the small scale agriculture producers

The variable costs, production prices and the activities performed in the production process presented in the following tables and charts are based on the data received from the focus group discussions with the targeted product groups of farmers, interviews with the agricultural households and exporters as well as from the researches and reports in this area in the recent years undertaken by different projects and programs.

For the purposes of this analysis, the family household working hours are not calculated in order to receive the gross margin, and to avoid the complicated discussions and various data in terms of how much manpower is needed by an average Macedonian agriculture household per 1 ha of tomato, pepper and table grapes. These calculations should illustrate the participation of various productivity parameters in the total production costs and indirectly, their influence of the export impact (competitive products).

4.1. Tomato

The production of 1 ha of tomato (closed plastic tunnel) has a yield of 55.000 kg/ha. The size of an average production area is less than 0,5 ha. The total variable costs are 693.000 MKD and total income of 990.000 MKD under an average buy-out price of 18 MKD/kg. The production price calculation is around 13 MKD/kg.

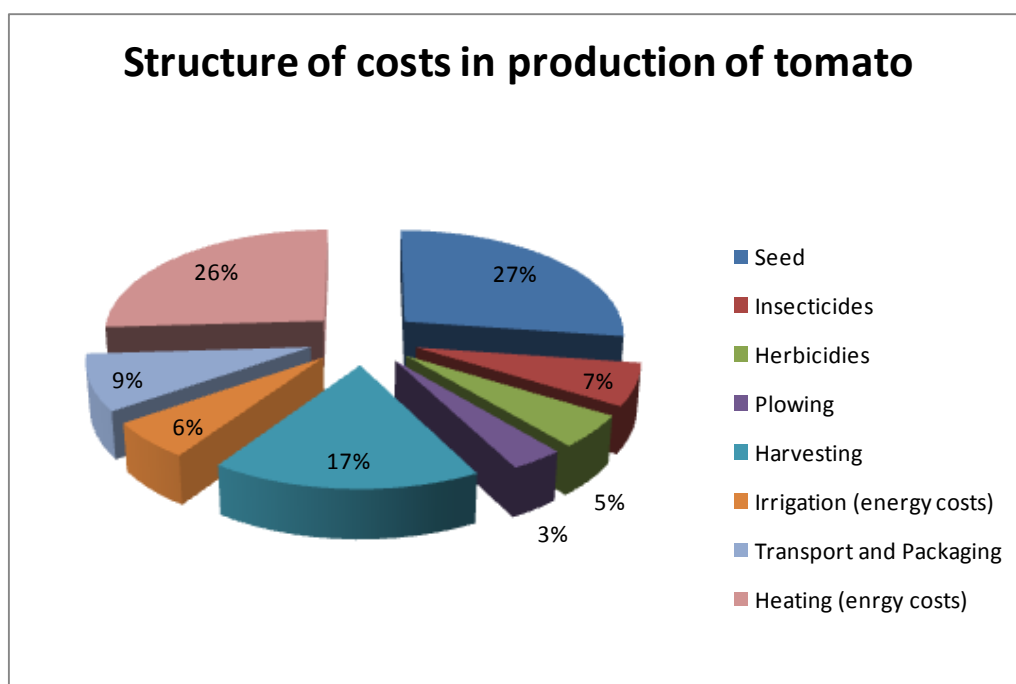
Production price of tomato (variable costs included only)

Product	Total Yield	Farm size	Buy-out price (MKD)	Total
Tomato	55000	1 ha	18	990.000
Total Income				990.000

Variable costs	Quantity	Unit	Price	Total
Seed	27000	ha	7	189.000
Insecticides	5	ha	9000	45.000
Herbicides	1	ha	35000	35.000
Plowing	4	ha	6000	24.000
Harvesting	3	ha	40000	120.000
Irrigation (energy costs)	8	ha	5000	40.000
Transport and Packaging	5000		12	60.000
Heating (energy costs)	3	ha	60000	180.000
Total variable costs				693.000
Production price per kg in MKD				12,60
Total income (minus variable costs), gross margin				297.000

Table 5: Production price of tomato, Focus Group Discussions, EPICENTAR International, 2011

As presented in the graphic below, the largest part in the structure of costs for the production of tomato is the heating costs with participation of 26% in the production price, followed by seed and seedlings with 27% participation in the production price.



Graphic 20: Structure of costs in the production of tomato, Focus Group Discussions, EPICENTAR International, 2011

The analysis of the production prices illustrates that the portion of costs associated with seeds, seedling material which represents the most important precondition for the production of tomato, is 27,3%, the second largest after the energy costs (heating and irrigation) which represents around 32% of the costs, the portion of production inputs (mainly insecticides, herbicides, fungicides as well as manure and mineral fertilizers) is 11,5% of the production prices, and the transport and packaging 8,7% of the production prices.

Seeds and seedlings	189.000	27,3%
Inputs	80.000	11,5%
Seasonal Labor	120.000	17,3%
Irrigation and Heating	220.000	31,7%
Plowing	24.000	3,5%
Research, Laboratories	-	0,0%
Transport and Packaging	60.000	8,7%
Insurance	-	0,0%
Total	693000	100,0%

Table 6: Production price costs tomato (grouped categories), EPICENTAR International Analysis, 2011

4.2. Pepper

The production of 1 ha of pepper (open field) has a yield of 30.000 kg/ha. The size of an average production area for open field is less than 0,5 ha. The total variable costs are 152.800 MKD and the total income is 177.200 MKD under an average buy-out price of 11 MKD/kg. The production price calculation is 5,1 MKD/kg.

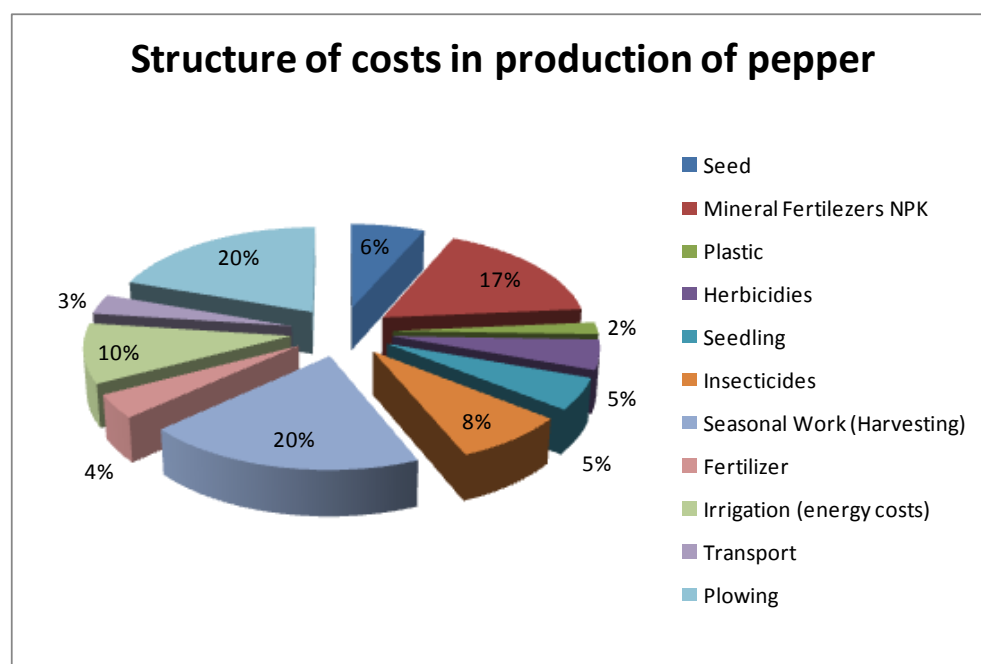
Production price of pepper (variable costs included only)

Product	Total Yield	Farm size	Buy-out price (MKD)	Total
Pepper	30000	1 ha	11	330.000
Total Income				330.000

Variable costs	Quantity	Unit	Price	Total
Seed	1	kg	10000	10.000
Mineral Fertilizers NPK	500	kg/ha	26000	26.000
Plastic	25,0	kg	3000	3.000
Herbicides			7500	7.500
Seedling			8000	8.000
Insecticides			12300	12.300
Seasonal Work (Harvesting)	50	day	600	30.000
Fertilizer			6000	6.000
Irrigation (energy costs)			15000	15.000
Transport			5000	5.000
Plowing			30000	30.000
Total variable costs				152.800
Production price per kg in MKD				5,1
Total income (minus variable costs), gross margin				177.200

Table 7: Production price of pepper, Focus Group Discussions, EPICENTAR International, 2011

In the structure of costs for pepper production the seasonal work and plowing take the largest portion, each with 20% of the production price, followed by the mineral fertilizers with 17%.



Graphic 21: Structure of costs in the production of pepper, Focus Group Discussions, EPICENTAR International, 2011

The analysis of the production prices illustrates that the portion of costs associated with inputs is 35, 9%, followed by the costs for seasonal labor and plowing, each with approximately 20% of the production costs. The third largest part of the production costs is seeds and seedling materials with 11, 8% of the costs.

Seeds and seedlings	18.000	11,8%
Inputs	54.800	35,9%
Seasonal Labor	30.000	19,6%
Irrigation	15.000	9,8%
Plowing	30.000	19,6%
Research, Laboratories	-	0,0%
Transport	5.000	3,3%
Insurance	-	0,0%
Total	152800	100,0%

Table 8: Production price costs pepper (grouped categories), EPICENTAR International Analysis, 2011

4.3. Table Grapes

The production of 1 ha of table grapes has a yield of 15.000 kg/ha and it is usually one parcel of this size. The total variable costs are 108.900 MKD, with the total income of 210.000 MKD under an average price of 14 MKD/kg buy-out price. The production price in the calculation is 7 MKD/kg.

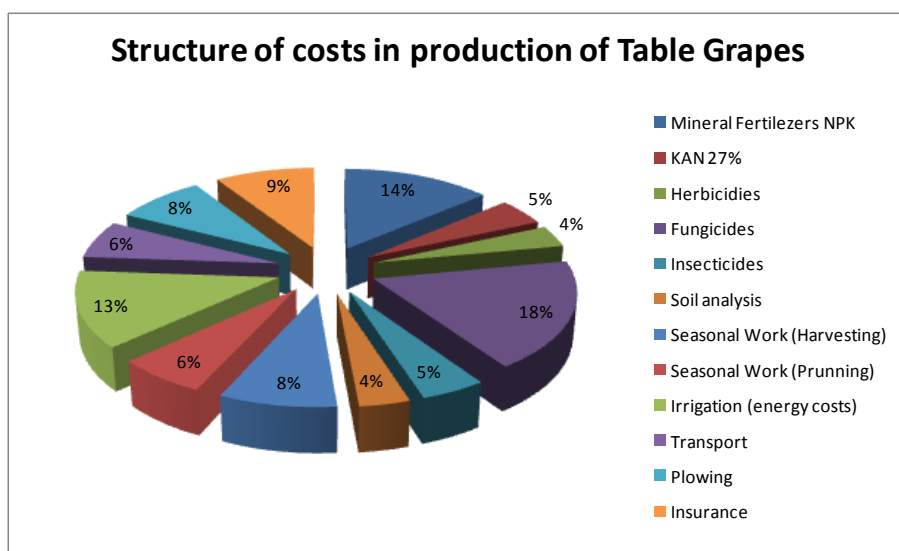
Production price of grapes (variable costs included only)

Product	Total Yield	Farm size	Buy-out price (MKD)	Total
Grapes	15000	1	14	210.000
Total Income				210.000

Variable costs	Quantity	Unit	Price	Total
Manure				
Mineral Fertilizers NPK	500	kg/ha	30	15.000
KAN 27%	250	kg/l	20	5.000
Herbicides	10	kg/l	400	4.000
Fungicides		kg/l		20.000
Insecticides		kg/l		5.000
Soil analysis				3.900
Seasonal Work (Harvesting)	15	per day	600	9.000
Seasonal Work (Pruning)	10	per day	700	7.000
Irrigation (energy costs)				14.000
Transport				7.000
Plowing	3	one per ha	300	9.000
Insurance		per ha		10.000
Total variable costs				108.900
Production price per kg in MKD				7
Total income (minus variable costs), gross margin				101.100

Table 9: Production price of grapes, Focus Group Discussions, EPICENTAR International, 2011

The largest part of the production costs are the fungicides with around 18%, mineral fertilizers 14% and insecticides 13%.



Graphic 22: Structure of costs in the production of Table Grapes, Focus Group Discussions, EPICENTAR International, 2011

The analysis of the production prices illustrates that the largest portion of the costs (45%) is connected with production inputs (mainly insecticides, herbicides, fungicides as well as manure and mineral fertilizers), seasonal labor involved in harvesting is second (14,7% of the costs), while the irrigation covers 12,9% of the product price.

Seeds and seedlings	0	0,0%
Inputs	49.000	45,0%
Seasonal Labor	16.000	14,7%
Irrigation	14.000	12,9%
Plowing	9.000	8,3%
Research, Laboratories	3.900	3,6%
Transport	7.000	6,4%
Insurance	10.000	9,2%
Total	108900	100,0%

Table 10: Production price costs grapes (grouped categories), EPICENTAR International Analysis, 2011

5. Productivity parameters for small scale producers in the country

Three focus group discussions were organized with small scale producers of the analyzed products: tomato, pepper and grape. The key findings of the focus group discussions are as following:

5.1. Key findings of the vegetable focus group discussions

► Agricultural land for vegetable production

Farmers claim that the effective use of agricultural land is hampered by small parcels and fragmentation, stemmed by inheritance customs, as well as a tradition of informal relations in the land market. In contrast, when natural disaster happens, farmers find that the high land fragmentation contributes to smaller losses if the parcels are in different region areas. The process of land consolidation is not easy acceptable by farmers. Producers state that the minimum land size for the production of pepper and tomato is 0,5 ha, and the most common size of the land per individual vegetable household is around 3 ha.

► Vegetable seed and seedlings material

Farmers are complaining of the low quality and in most cases, of expire use period of the seed materials. Frequently, the seed material doesn't meet the expected yields in line with the declaration, and it often escapes the regular inspection control. Mostly, farmers buy seed material and produce their own seedlings at the farm. Rarely, farmers use produced seedling material for tomato and pepper production, which is mainly imported and with very high prices reaching 0,34€/seedling. The seed material is also very expensive, what contributes to the high production costs for tomato and pepper.

► Energy for vegetable production

Farmers use water from the irrigation systems or water pumps that use fuel or electrical energy for their operations. The most used type for heating the plastic tunnels and glasshouses is wood and fuel and rarely electric energy since it is the most expensive. The heating system is inefficient and obsolete and there is a low use of thermal water as an alternative source of energy. The general conclusion of the farmers was that the used source of energy: fuel, wood, electric power and gas are very expensive which substantially raises production costs.

► Labor force for vegetable production

The dominant labor force is family members, and in some agriculture production operations, the seasonally engaged workers as well. There is a scarcity of seasonal labor force during the period of main agricultural production operations, in particular the skilled one. The seasonal workers are paid in average 0,85€ per hour, excluding costs for food and transport which are organized additionally by the agricultural holding.

► **Production technology and yields**

Small scale farmers produce pepper and tomato mainly under plastic green houses. Most of the plastic halls have a drip irrigation system. In order to have permanent production during the whole season, three variety of tomato are grown in the same plastic tunnels.

Farmers implement all necessary agro-technical measures, especially taking care of the regular protection and fertilization of the vegetable production. They are not satisfied with the quality of the protection inputs, because, in most cases, these inputs are not completely effective. There is a lack of modern technology in vegetable production, such as computerization and the use of machinery for planting, harvesting or other specialized operations.

► **Working capital and investments**

Farmers think that in the agricultural sector, there is no favorable environment for investments and working capital credits to undertake reconstruction, modernization and new investments. In most cases, the financial institutions are not entirely transparent in the financial credit costs. The modest investment results in outdated technology and low productivity.

► **Education and advisory services**

Farmers pointed out that the practical education and real expertise are missing on the field but there are some actions for improvements in the last 4 years. It was pointed out that education and informative sessions are usually organized in inappropriate timing for the farmers when they are engaged with most of the farming activities. Farmers stressed out the need of demonstrative farms in order to be convinced that the implementation of the new technologies would be beneficial in regard to production and product costs.

► **Implementation of agricultural standards**

Due to the buyer and consumer demand, there is a growing interest for the introduction of production standards in the tomato and pepper production. The members from the vegetable focus group explained that they had started with the procedure for the implementation of the Global Gap. The main difficulties farmers face are keeping regular records of all figures and steps for the farm operations as well as the long and complicate administrative procedures.

► **Organization of the farmers**

Farmers recognize the need for enlargement and creation of cooperatives as a model to become more economically viable. The contract farming is identified as top priority in the organization of farm activities; however, it is very rarely practiced. Although farmers and traders or processing industry show some interest, the dialog between the producers and buyers is very limited and not realistic referring to market conditions.

5.2. Key findings of the grape focus group discussions

► Agricultural land structure for grape production

The farmers have emphasized the problem of the high fragmentation of the vineyard plots that causes inefficient utilization of the mechanization. The average size of the land under vineyards per individual farmers is around 1,5 ha, but it spreads on more than 3 parcels. Furthermore, another big problem is the use of state own land without signed contracts, for which the grape producers do not have rights to use subsidies per ha. Farmers find the land consolidation a very complicate process and not easily acceptable.

► Grape Yields

Vineyards yields are at a low level, caused by reduced use of the agrochemicals, due to the financial inability of the farmers to supply all the necessary input materials. The insufficient water approach is also the reason for the yield instability and quality variations.

► Grape seedling materials

The grape producers explained that there is a widespread use of uncertified planting material, mostly an import from the neighboring countries. There are just several domestic nurseries for the production of grape seedlings that reflect the dependence on imported certified seedling material and limitation of the use of grape varieties.

► Energy for grape production

During drought years, the water deficit for grape production is high, causing significant economic losses in terms of reduced grape production. The existing irrigation system is obsolete and not maintained by the authority organizations. Water communities are functionally weak, that causes the grape producers not to sign the water contracts which results in a very low level of water payments. Farmers consider that the costs for the use of water are very high. They objected strongly the permanent increase of the fuel price, as it has severely impacted the grape production in the last two years.

► Labor force

The dominant labor force is mainly family members, including seasonally engaged workers for pruning and harvesting operations. There is a scarcity of a seasonal labor force during the period of

the main agro technical measures, in particular skilled and professional ones. The costs for seasonal workers are high that has a significant influence on the production costs.

► **Production technology and new investments**

Farmers use outdated cultivation practices and technical equipment. There is a very low interest for new investments especially after the previous several disaster years for grape producers, characterized with low demand and buy-out prices.

► **Education and advisory services**

There is a lack of strategy experts for grape production. The advisory services that exist are expensive and are not easily approachable by the producers. The unstable grape and wine policy and the different support measures make the production risky and not development- oriented.

► **Grape marketing and organization of the farmers**

Grape sales to the wineries are generally not regulated by specifically agreed preconditions or by cooperation contract. Farmers are in a very bad position, characterized by weak negotiation power and no price influence. The main problems are acceptance/purchase of the grapes and timely payments to the farmers for their deliveries by the processing industries. The farmers' organizations are not well developed, which results in the absence of market influence.

6. Country productivity comparative analysis (with Croatia and Slovenia)

For the purpose of an adequate and realistic productivity analysis, an attempt has been made to compare the productivity parameters in the production cycle for tomato, pepper and grapes with a country from the region that has higher productivity than Macedonia, but which, at the same time, shows existing or previous similarities in the agriculture. Taking into account the availability of data, Croatia was selected as an appropriate example for making comparison on the productivity index for the same crops.

For the purpose of the analysis, the participation of various parameters in the production price shown as % are indexed with the index 1 which is equivalent to 1%, index 2,3 equivalent to 2,3% etc.

6.1. Tomato

The structure of the production price of tomato for Macedonia and Croatia is illustrated in the tables below.

MACEDONIA		CROATIA	
Seeds and seedlings	27,3%	Seeds and seedlings	42,2%
Inputs	11,5%	Inputs	20,7%
Seasonal Labor	17,3%	Seasonal Labor	8,6%
Irrigation and Heating	31,7%	Irrigation and heating	24,3%
Plowing	8,5%	Plowing	2,1%
Research, Laboratories	0,0%	Research, Laboratories	0,0%
Transport and Packaging	3,7%	Transport and Packaging	2,1%
Insurance	0,0%	Insurance	0,0%
Total	100,0%	Total	100,0%

Table 11: Structure of production price of tomato in % for Macedonia and Croatia

The indexed table on the comparison of the production of Croatia and Macedonia illustrates that inside the productivity parameters there are great differences. Most of the expenses in the case of Croatia are covering are in the seeds and seedling material with an index 42, while this index, in the case of Macedonia, is almost 2 times smaller or only 27. The seeds and seedlings costs in Macedonia are smaller, partly due to the lower price of the material; partly due to the lower quality of the seedling material, but mostly due to the own production of seedling material from the purchased seeds. The actual expenditure in the inputs for production in the case of Croatia (indexed with 21) is covering the adequate, preventive use of various protection inputs with appropriate quality, while in the case of Macedonia (11), these expenditures are smaller as their use in the prevention is much lower, and becomes higher only in the phase when there is a need for the treatment of certain diseases. However, in the case of Macedonia, this is a very small index that needs to be doubled in order to improve the productivity.

In the case of plowing costs, the difference in the indexes illustrates that due to the large production areas, the use of mechanization (in this case tractor) can become four times smaller when it comes to one plot of 1 hectare (Croatian case) and several plots to reach 1 hectare (Macedonian case). The costs for irrigation are double in Macedonia as a result of non-existence of irrigation systems in the whole country and higher costs for the use of fuel or electricity for the water pumps.

The seasonal labor costs in Macedonia are very high compared to Croatia mostly due to the absence of use of specialized mechanization for planting and harvesting, and more optimal use of the family workforce.

The transport costs in Macedonia are higher than in the Croatia which is due to the dispersion of the parcels to be harvested and products transported to the buy-out centre as well as the non-efficient use of the transport vehicles.

Indexes of the productivity parameters for tomato production (1 ha)								
		<i>Inputs</i>	<i>Plowing</i>	<i>Irrigation and Heating</i>	<i>Seasonal Labor</i>	<i>Seeds and seedlings</i>	<i>Insurance</i>	<i>Transport</i>
1	Macedonia	11,5	8,5	31,7	17,3	27,3	0	3,7
2	Croatia	20,7	2,1	24,3	8,6	42,2	0	2,1

Table 12: Indexes of the productivity parameters for tomato production (1 ha), EPICENTAR International Analysis, 2011

The conclusion at this point is that even though the yields are the same for the production of tomatoes on 1 ha in Macedonia and Croatia (55.000 kg/ha), the production price of tomato in Croatia is 0,25 Euros/kg and in Macedonia 0,19 Euros/kg. When it comes to the buy-out price, the Croatian tomato is sold for 0,80 Euros/kg, while the Macedonian one for 0,30 Euros/kg.

The calculation illustrates that a higher investment in the production will return a higher income and will improve the productivity.

In comparison to Slovenia, taking into analysis the final number at the production of 1 ha of tomato, the yield is higher in Macedonia for over 20%, while the production price in Macedonia is five times lower than the production price in Slovenia. The average buy-out price in Macedonia is only 40% of the price in Slovenia. This illustrates the competitiveness of Macedonian products as well as the high productivity level in comparison to Slovenia; however, there are additional production requirements (standards, variety etc.) where the Macedonian product loses its competitiveness compared to the production from EU countries.

TOMATO (1 ha)		
	Macedonia	Slovenia
Yield (kg/ha)	55.000	40.000
Production price per kg in Euro	0,19	0,53
Average buy-out price per kg in Euro	0,32	0,80

Table 13 : Comparison of the prices and parameters for tomato production in Slovenia and Macedonia, Katalog kalkulacij za kmetijstvo, Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Republika Slovenija, 2010

6.2. Pepper

MACEDONIA

Seeds and seedlings	11,8%
Inputs	35,9%
Seasonal Labor	19,6%
Irrigation	9,8%
Plowing	19,6%
Research, Laboratories	0,0%
Transport	3,3%
Insurance	0,0%
Total	100,0%

CROATIA

Seeds and seedlings	40,9%
Inputs	14,6%
Seasonal Labor	33,1%
Irrigation	7,7%
Plowing	2,4%
Research, Laboratories	0,0%
Transport	1,3%
Insurance	0,0%
Total	100,0%

Table 14: Structure of production price of pepper in % for Macedonia and Croatia

The structure of the pepper production costs in Croatia and Macedonia illustrates significant differences in some of the productivity parameters.

The illustration of the indexes of the productivity parameters for pepper production shows that the Croatia has the highest index in the seedling material as the farmers purchase prepared seedling material, not only the seeds, which is the case in Macedonia where the farmers prepare the seedling material by themselves. The seeds/seedlings index is four times higher in the Croatian production. The inputs index for Macedonia is more than double in comparison with Croatia, which is normal, as due to the own production of seedlings the inputs costs are higher. The plowing costs are ten times higher in Macedonia as part of the production costs which is mainly due to the fragmentation of the land in several parcels that have a total of 1 hectare.

The irrigation costs in Macedonia are higher due to the use of fuel and electrical energy for the water pumps instead of irrigation systems.

This analysis shows interesting data concerning the seasonal labor index which is relatively high in Croatia (33), while in Macedonia, even though there is a rare use of specialized equipment for planting and harvesting, it is much smaller (20). The transportation costs in this case are almost three times higher than in Croatia, but in general, they have a relatively small part in the production price.

Indexes of the productivity parameters for pepper production (1 ha)								
		<i>Inputs</i>	<i>Plowing</i>	<i>Irrigation</i>	<i>Seasonal Labor</i>	<i>Seeds and seedlings</i>	<i>Insurance</i>	<i>Transport</i>
1	Macedonia	36	20	10	20	11	0	3
2	Croatia	15	2	8	33	41	0	1

Table 15: Indexes of the productivity parameters for pepper production (1 ha), EPICENTAR International Analysis, 2011

In this case, the yields in Croatia per hectare are 45.000 kg, while in Macedonia they are below 30.000 kg. The production price per kg in Macedonia is 0,10 Euros/kg while in Croatia it is 0,29 Euros/kg. The buy-out price of Macedonia is 0,18 Euros/kg, and in Croatia 0,45 Euro/kg. Besides better productivity in terms of each productivity parameter, the overall total productivity is higher in Macedonia than in Croatia in terms of the yields.

The production of pepper in Slovenia compared to that in Macedonia has the same yield in average of 1 hectare of production. The difference in the production price is around 40% higher in Slovenia, and in the buy-out 75% higher in Slovenia. It is interesting that according to the calculations, the gross profit per kg in Slovenia is only 0,07 Euros compared to 0,10 Euros in Macedonia.

PEPPER (1 ha)		
	Macedonia	Slovenia
Yield (kg/ha)	30.000	30.000
Production price per kg in Euro	0,10	0,18
Average buy-out price per kg in Euro	0,20	0,35

Table 16: Comparison of the prices and parameters for tomato production in Slovenia and Macedonia, Katalog kalkulacij za kmetijstvo, Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Republika Slovenija, 2010

6.3. Table Grapes

MACEDONIA		CROATIA	
Seeds and seedlings	0,0%	Seeds and seedlings	0,0%
Inputs	45,0%	Inputs	47,3%
Seasonal Labor	14,7%	Seasonal Labor	28,5%
Irrigation	12,9%	Irrigation	5,1%
Plowing	8,3%	Plowing	8,5%
Research, Laboratories	3,6%	Research, Laboratories	2,1%
Transport	6,4%	Transport	2,1%
Insurance	9,2%	Insurance	6,3%
Total	100,0%	Total	100,0%

Table 17: Structure of production price of table grapes in % for Macedonia and Croatia, EPICENTAR Analysis, 2011

The table grapes comparison of the production costs between Macedonia and Croatia illustrates very big similarities due to the modern production technology and less improvisations in the production cycle. The inputs are indexed with 48 in both countries, which show that they take almost 50% in the production of grapes. Under the category of production input different herbicides, insecticides and fungicides are counted together with the mineral fertilizers and manure.

The plowing index is almost the same, as this operation is performed in the same manner and scope in both countries. The irrigation costs are higher in Macedonia, mostly due to the larger costs for fuel or electricity for the water pumps.

The seasonal labor in Croatia is indexed with 29 in comparison to 15 in Macedonia because of the higher price of the seasonal labor in Croatia. The seasonal labor in both countries is used in two operations (pruning and harvesting) in addition to the family workforce.

Indexes of the productivity parameters for table grapes production (1 ha)								
		<i>Inputs</i>	<i>Plowing</i>	<i>Irrigation</i>	<i>Seasonal Labor</i>	<i>Seeds and seedlings</i>	<i>Insurance</i>	<i>Transport</i>
1	Macedonia	48	8	13	15	0	10	6
2	Croatia	48	9	5	29	0	6	3

Table 18: Indexes of the productivity parameters for table grapes production (1 ha), EPICENTAR International Analysis, 2011

The yield on 1 hectare in Croatia is 12.000 kg, while in Macedonia it is 15.000 kg. The production costs in overall per kg in Croatia are 0, 26 Euro/kg sold at the price of 0, 54 Euro/kg. In Macedonia the production price is 0, 11 Euro/kg and the buy-out price is 0, 23 Euro/kg.

The comparison of the table grapes production between Macedonia and Slovenia shows that Macedonian grapes production is much more productive with 33% more yield per ha than in Slovenia due to the favorable climate conditions and implementation of modern production technology, even though the production technology in Slovenia is on the same level or in some cases, on a higher level.

The production price in Slovenia is very expensive with 0,43 Euro/kg, that is 4 times higher than in Macedonia. The buy-out price in Slovenia is 0,52 Euro/kg and in Macedonia 0,24 Euro/kg. Again, as in the case of pepper production, the gross profit per kg in Macedonia is 0,13 Euros, while in Slovenia it is 0,07 Euros.

This illustrates that in order to become economically viable, the Slovenian farmer should have 5-6 times larger production area than the Macedonian farmer in order to achieve the same gross profit per farm. However, the fact is that the Slovenian farmers have much larger production areas than presented in the previous calculations, and in the case of Macedonia, the production, in most of the cases, is around half of this calculations.

TABLE GRAPES (1 ha)

	Macedonia	Slovenia
Yield (kg/ha)	15.000	10.000
Production price per kg in Euro	0,11	0,43
Average buy-out price per kg in Euro	0,24	0,52

Table 19: Comparison of the prices and parameters for tomato production in Slovenia and Macedonia, Katalog kalkulacij za kmetijstvo, Ministrstvo za kmetijstvo, gozdarstvo in prehrano, Republika Slovenija, 2010

7. Recommendations

The key findings related to the three selected products were used as a tool to analyze the agriculture productivity. The proposed recommendations should be taken as general guidelines for the improvement of Macedonian agriculture productivity. On the other hand, the competitiveness of the products and the export performance are directly influenced by the various productivity parameters, which represents the cause – consequence relation. If the productivity is improved, the competitiveness of the products and the export value will increase.

Around 89% of total production comes from the small scale individual agriculture holdings, versus the 11% of the business agriculture entities. In addition, only 1% of the holdings in the country produce under the production value of 50.000 Euros, while most of them(~53%) belong to the category of production below 2.000 Euros. This emphasizes the significance of the small scale producers, for the Macedonian agriculture in general. It is widely accepted opinion that in this category, 10-20% of these producers could be considered as socially vulnerable groups that produce on the level of existence, rather than business-oriented producers. However, this is the group that forms the majority of the Macedonian production.

Thus, when we speak about the productivity and its improvement, we generally speak about the improvement of the productivity of more than 180.000 individual agriculture holdings that own around 1,47 hectares of land fragmented in at least three parcels, with a potential to be further fragmented in more and more parcels due to the inherit customs. The main conclusion at this point is that on a long run, the further fragmentation will lead to the collapse of the small-scale farming of this type. In addition, the variety and production technologies become more and more market inadequate and are narrowing down towards a situation of becoming unprofitable, when the farmers will not be able to cover the production costs at the buy-out price.

This represents a big problem for the Macedonian agriculture in general, and one of the most important challenges for the state where the agriculture participates with around 11% in the GDP. Republic of Macedonia with its limited resources and possibilities to influence the market has to take immediate steps into PLANNING the development of the agricultural sector.

1. The **PLANNING** should cover selection of strategic crops for further development, prioritization of the most important; market-oriented crops and direction of the available resources into a list of products that will impact the Macedonian agriculture with higher competitiveness and increased export value. The support measure in this perspective is foreseen by a number of subsidies that will enable, in time, appropriate and adequate support to enhance the specific crop development.
2. **PRACTICAL EDUCATION AND EXPERTISE** is necessary activity for improvement of the productivity on the small scale farming level. Appropriate expertise in terms of farm management, organization of the investment, and later on support in the production cycle with practical knowledge and demonstration farms needs to be organized. In this respect the small scale farmers will receive continuous education and experiences exchange that will make their holdings more productive, efficient and profitable.

3. **ENLARGEMENT** of the production, by defragmentation of the parcels and unification of the farms, as well as entailing state owned, rented land to the agriculture holdings is another important activity to be considered for the improvement of the productivity. The idea behind the process is to distinguish the “real” farmers from the “hobbyists” and support the former with a number of measures that will help them enlarge the production, increase the size of the parcels as well as the size of the agriculture holding farm size. This will lead to optimization of resources and improvement of the productivity on the overall agriculture holding production level.
4. **ASSOCIATION** of the small scale producers in a well structured manner and form such as cooperatives or production groups that will enable better organization of the production, standardization, uniformed quality of the products, and increased negotiation power in the process of contracting quantities and market penetration. The process should improve the production technology from its begging by uniformed quality and type of inputs used and uniformed quality of the products. In addition, it should decrease the costs related to purchase of the inputs, extension services and use of mechanization. The education and skills building will become easily transferable and utilized due to the regular share of practices and know-how.
5. **PRODUCTION TECHNOLOGY** is changing regularly and the market becomes more dynamic for the modern technologies and standards that vary even on the level of the crop variety and not only on the crop itself. The specialization of the technology requires mobilization of available resources, such as time, finances and human capital in order to respond to the market conditions. The costs related to the education for the new technologies are very expensive for the small-scale farmers which are one of the reasons why they still keep the traditional production technology. Further support in this area is required that will improve the productivity in the sense of creating a better quality and market-oriented final product.
6. **VERTICAL LINKAGES** support in each of the specific agriculture sub-sectors is required in order to better organize the production, based possibly on the contract-farming, improve the relations between the players in the value chain, and finally result in improved distribution of the margins. There were many attempts in this area, but only an organized approach, equally involving all the players on the principles of thrust and market economy, will enable improved redistribution of margins and identify the levels that require further support in the chain. In addition, the system of this type will be able to identify and propose adequate interventions in any part of the value chain, represented not only as production cost, but also as specific production operations.

As mentioned before, organizing interventions for small scale farmers is difficult, time consuming and expensive. The previous interventions funded by different donors, where the transfer of know-how was organized through the existing agribusinesses or using Lead Farmers on regional level locations, appeared to be the most effective mechanisms for the overall improvement of the small scale farmer productivity. These efforts should be followed by well organized dissemination activities preferably by well established nationwide local farmers’ network.

The recommendations proposed are EPICENTAR Team suggestions to improve the productivity on the level of small-scale farmers, enhance the competitiveness of the agriculture and improve the

export performance of the agribusiness. Each of these should be taken into consideration carefully and crumbled on the level of actions that should be undertaken with the various stakeholders in the agriculture system, giving maximum results with the resources invested.

Annex 1: List of Interviews

AgBiz Productivity of Primary Producers and correlation to export performance, Interviews

No	Name	Organization	Place
1	Zaklina Golceva	Agronomist, Advisor	Zrnovci, Kocani
2	Aleksandar Nikolov	Fagrikom	Skopje & Kocani
3	Andonov Igor	State Extensions Service	Kocani
4	Zoran Tasev	Agriland, Exporter	Skopje
5	Blasko Temov	Peca Komerc, Exporter	Kavadarci
6	Gjoko Danailov	Vitis cooperative	Negotino
7	Gjorgji Ajtov	State Extensions Service	Negotino
8	Zoran Peev	Dalvina	Strumica
9	Vanco Georgiev	Buyer, Sonce	Strumica
10	Trajce Karadakoski	Mabi-trade, processor	Strumica
11	Risto Endzekcev	Badzo, exporter	Bogdanci
12	Dragi Pamukov	Cooperative Kukla	Kuklis, Strumica

Annex 2: List of Focus Groups Participants

AgBiz Productivity of Primary Producers, Focus Group Pepper Producers, Zrnovci, Kocani,

No	Name	Place
1	Kosta Ilievski	Morodvis
2	Sarafinov Blagoj	Morodvis
3	Goce Atanasovski	Morodvis
4	Aleksandar Zasev	Kocani
5	Tanja Zaseva	Grdovci
6	Petrov Ljupco	Grdovci
7	Andonov Igor	Grdovci
8	Zaklina Golceva	Zrnovci
9	Metodi Nikolov	Vidoviste

AgBiz Productivity of Primary Producers, Focus Group Tomato Producers, Strumica, 09.05.2011

No	Name	Organization
1	Dragi Pamukov	Kukla Gradinar
2	Vane Zlatanov	Kukla Gradinar
3	Vasko Atanasovski	Kukla Gradinar
4	Asenco Arlamov	Kukla Gradinar
5	Vase Mitusev	Kukla Gradinar
6	Vase Popov	Kukla Gradinar
7	Stole Popov	Kukla Gradinar
8	Zoran Milusev	Kukla Gradinar
9	Pavle Donev	Kukla Gradinar

AgBiz Productivity of Primary Producers, Focus Group Table Grapes Producers, Negotino, 10.05.2011

No	Name	Product	Place
1	Kostov Gorgi	Grapes	Negotino
2	Gligorov Gorgi	Grapes	Negotino
3	Janev Donco	Grapes	Timjanik
4	Kostov Toni	Grapes	Negotino
5	Mickov Gelo	Grapes	Negotino
6	Saso Mihajlov	Grapes	Negotino
7	Gjorgi Ajtov	Grapes	Negotino

Annex 3: Tables

Export in EX-YU

Name of the Product:	TOMATO					
	Export in kg					
	2000	2004	2007	2008	2009	2010
Slovenia	1.140.026	1.454.019	990.752	1.543.284	727.564	1.222.319
Croatia	2.193.440	1.390.314	2.313.977	3.924.726	2.049.090	1.315.498
Other part of Ex-Yu	13.331.846	24.833.233	24.160.913	31.738.582	30.754.665	30.754.665
Total Ex-YU	16.665.312	27.677.566	27.465.642	37.206.592	33.531.319	31.261.201

Name of the Product:	TOMATO					
	Export in USD					
	2000	2004	2007	2008	2009	2010
Slovenia	458.253	891.963	992.621	1.212.069	484.664	965.667
Croatia	379.773	540.592	1.745.908	2.903.930	1.664.244	992.430
Other part of Ex-Yu	2.318.812	6.550.144	13.261.732	20.471.740	18.024.947	15.562.773
Total Ex-YU	3.156.838	7.982.698	16.000.261	24.587.739	20.173.855	17.520.870

Name of the Product:	TOMATO					
	Export in EUR					
	2000	2004	2007	2008	2009	2010
Slovenia	497.780	722.093	719.620	805.252	333.052	758.171
Croatia	406.513	443.763	1.269.709	1.906.484	1.179.181	783.836
Other part of Ex-Yu	2.515.790	5.378.052	9.783.186	13.281.717	12.965.810	12.431.413
Total Ex-YU	3.420.083	6.543.908	11.772.515	15.993.453	14.478.043	13.973.420

Export by regions

Name of the Product:	TOMATO					
	Export in kg					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	16.665.312	27.677.566	27.465.642	37.206.592	33.531.319	31.261.201
Region	237.512	2.797.925	17.756.398	22.310.564	13.656.995	16.744.487
EU	748.402	402.878	757.362	617.353	383.733	1.212.993
Ex Soviet	104.778	0	1.841.182	2.053.423	309.564	2.258.762
Other	0	798	11.090	78.685	0	612.025
Total	17.756.004	30.879.167	47.831.674	62.266.617	47.881.611	52.089.468

Name of the Product:	TOMATO					
	Export in USD					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	3.156.838	7.982.698	16.000.261	24.587.739	20.173.855	17.520.870
Region	74.366	1.011.412	5.662.886	6.326.754	4.242.718	8.095.160
EU	237.885	171.279	477.915	376.463	251.655	831.397
Ex Soviet	16.206	0	987.989	931.251	166.305	1.527.581
Other	0	794	1.226	67.526	0	238.787
Total	3.485.295	9.166.183	23.130.278	32.289.733	24.834.533	28.213.795

Name of the Product:	TOMATO					
	Export in EUR					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	3.420.083	6.543.908	11.772.515	15.993.453	14.478.043	13.973.420
Region	81.666	813.003	4.059.935	4.463.051	2.918.363	6.057.477
EU	257.759	138.793	340.833	251.828	171.951	643.150
Ex Soviet	17.270	0	716.223	612.435	116.881	1.165.129
Other	0	627	908	43.187	0	172.207
Total	3.776.778	7.496.331	16.890.414	21.363.954	17.685.238	22.011.383

Export in EX-YU

Name of the Product:	PEPPER					
	Export in kg					
	2000	2004	2007	2008	2009	2010
Slovenia	1.749.156	1.370.210	1.158.091	2.074.743	2.346.136	2.461.926
Croatia	1.357.970	474.042	428.809	1.011.009	1.983.367	2.356.999
Other part of Ex-Yu	6.566.959	9.682.325	5.744.359	9.088.766	8.377.407	8.377.407
Total Ex-YU	9.674.085	11.526.577	7.331.259	12.174.518	12.706.910	16.055.810

Name of the Product:	PEPPER					
	Export in USD					
	2000	2004	2007	2008	2009	2010
Slovenia	561.760	611.536	644.405	1.161.753	1.221.157	1.207.026
Croatia	265.733	155.580	321.524	721.620	1.095.256	1.242.949
Other part of Ex-Yu	958.851	2.716.210	2.387.430	4.428.028	3.914.534	4.324.154
Total Ex-YU	1.786.344	3.483.326	3.353.359	6.311.401	6.230.947	6.774.129

Name of the Product:	PEPPER					
	Export in EUR					
	2000	2004	2007	2008	2009	2010
Slovenia	645.517	497.748	463.644	819.516	835.212	919.134
Croatia	303.148	127.177	232.685	502.166	751.503	953.633
Other part of Ex-Yu	1.044.659	2.219.092	1.734.326	3.002.893	2.770.563	3.338.940
Total Ex-YU	1.993.324	2.844.017	2.430.655	4.324.575	4.357.278	5.211.707

Export by regions

Name of the Product:	PEPPER					
	Export in kg					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	9.674.085	11.526.577	7.331.259	12.174.518	12.706.910	16.055.810
Region	4.488.015	5.838.116	9.629.770	12.490.235	7.144.528	14.232.317
EU	931.702	1.825.756	1.003.297	1.638.451	1.019.698	3.708.858
Ex Soviet	0	0	0	5.730	17.506	3.804
Other	16.550	190	5.512	528	0	0
Total	15.110.352	19.190.639	17.969.838	26.309.462	20.888.642	34.000.789

Name of the Product:	PEPPER					
	Export in USD					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	1.786.344	3.483.326	3.353.359	6.311.401	6.230.947	6.779.699
Region	949.286	1.450.829	2.379.405	3.122.497	1.965.821	5.051.493
EU	254.727	629.842	631.322	943.068	554.554	1.908.737
Ex Soviet	0	0	0	2.951	5.256	7.037
Other	5.099	185	488	1.250	0	0
Total	2.995.456	5.564.181	6.364.574	10.381.167	8.756.578	13.746.966

Name of the Product:	PEPPER					
	Export in EUR					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	1.993.324	2.844.017	2.430.655	4.324.575	4.357.278	5.211.707
Region	1.096.282	1.164.780	1.696.255	2.183.344	1.351.563	3.783.960
EU	291.646	509.596	453.799	654.652	381.371	1.460.935
Ex Soviet	0	0	0	1.904	3.601	5.456
Other	5.923	144	361	792	0	0
Total	3.387.175	4.518.537	4.581.070	7.165.267	6.093.813	10.462.058

Export in EX-YU

Name of the Product:	TABLE GRAPES					
	Export in kg					
	2000	2004	2007	2008	2009	2010
Slovenia	59.428	1.400	0	3.527	1.937	2.734
Croatia	395.301	2.944.629	1.814.873	1.759.060	1.696.552	1.909.946
Other part of Ex-Yu	9.006.735	10.671.224	32.552.095	20.359.214	18.293.625	18.293.625
Total Ex-YU	9.461.464	13.617.253	34.366.968	22.121.801	19.992.114	23.125.404

Name of the Product:	TABLE GRAPES					
	Export in USD					
	2000	2004	2007	2008	2009	2010
Slovenia	21.244	920	0	3.039	1.167	1.194
Croatia	60.417	718.267	601.680	660.071	692.797	549.628
Other part of Ex-Yu	1.284.389	2.728.681	11.911.855	9.913.815	7.754.655	8.379.804
Total Ex-YU	1.366.051	3.447.869	12.513.535	10.576.925	8.448.619	8.930.626

Name of the Product:	TABLE GRAPES					
	Export in EUR					
	2000	2004	2007	2008	2009	2010
Slovenia	24.048	748	0	2.100	801	917
Croatia	69.213	585.653	438.105	467.676	479.003	421.092
Other part of Ex-Yu	1.460.773	2.209.680	8.597.105	7.002.453	5.326.806	6.314.536
Total Ex-YU	1.554.033	2.796.080	9.035.209	7.472.229	5.806.610	6.736.545

Export by regions

Name of the Product:	TABLE GRAPES					
	Export in kg					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	9.461.464	9.375.080	10.340.233	22.121.801	19.992.114	23.125.404
Region	2.677.131	306.438	2.146.079	7.595.334	3.789.098	4.630.653
EU	306.877	87.128	58.768	91.413	50.240	1.901.763
Ex Soviet	14.855.180	52.552	84.802	640.740	266.761	1.580.824
Other	10.344.711	353	0	9.180	0	429.053
Total	37.645.363	9.821.551	12.629.882	30.458.468	24.098.213	31.667.697

Name of the Product:	TABLE GRAPES					
	Export in USD					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	1.366.051	2.460.577	5.344.754	10.576.925	8.448.619	8.930.626
Region	352.784	114.237	630.881	2.252.673	1.232.338	1.362.528
EU	79.398	31.085	34.776	72.960	31.986	760.512
Ex Soviet	2.134.215	24.778	33.436	429.125	195.460	1.207.411
Other	1.454.737	265	0	7.341	0	315.464
Total	5.387.184	2.630.941	6.043.847	13.339.024	9.908.403	12.576.541

Name of the Product:	TABLE GRAPES					
	Export in EUR					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	1.554.033	1.991.531	3.819.726	7.472.229	5.806.610	6.736.545
Region	403.630	90.328	446.390	1.591.232	845.899	998.971
EU	91.380	25.422	25.451	50.299	21.926	561.302
Ex Soviet	2.432.431	20.112	24.892	306.283	135.422	893.130
Other	1.657.946	201	0	4.983	0	229.040
Total	6.139.420	2.127.594	4.316.460	9.425.026	6.809.857	9.418.988

Export in EX-YU

Name of the product:	FRESH VEGETABLES					
	EXPORT IN KG					
Year	2000	2004	2007	2008	2009	2010
Slovenia	3.524.460	3.495.105	3.288.457	4.768.885	3.687.467	4.618.099
Croatia	4.954.601	4.092.131	7.078.464	8.947.525	6.860.066	7.559.399
Other part of Ex-Yu	41.983.964	66.590.006	62.215.882	76.983.588	72.197.140	77.620.835
Total Ex-YU	50.463.025	74.177.242	72.582.803	90.699.998	82.744.673	89.798.333

Name of the product:	FRESH VEGETABLES					
	EXPORT IN KG					
Year	2000	2004	2007	2008	2009	2010
Slovenia	1.315.833	1.437.783	1.495.916	1.986.243	1.363.664	2.013.905
Croatia	987.636	954.838	2.906.084	4.097.486	3.138.294	3.363.753
Other part of Ex-Yu	5.797.274	11.637.473	17.197.319	24.176.663	22.377.225	23.744.676
Total Ex-YU	8.100.744	14.030.094	21.599.319	30.260.392	26.879.183	29.122.334

Name of the product:	FRESH VEGETABLES					
	EXPORT IN KG					
Year	2000	2004	2007	2008	2009	2010
Slovenia	1.173.449	1.774.299	2.059.277	2.933.686	1.980.610	2.603.637
Croatia	891.071	1.160.698	3.965.692	6.243.308	4.388.123	4.347.376
Other part of Ex-Yu	5.347.158	14.168.836	23.353.832	37.052.081	30.953.254	30.351.282
Total Ex-YU	7.411.678	17.103.832	29.378.801	46.229.075	37.321.987	37.302.295

Export by regions

Name of the Product:	FRESH VEGETABLE					
	Export in kg					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	50.463.025	74.177.242	72.582.803	90.699.998	82.744.673	89.798.333
Region	12.238.712	22.578.424	52.741.121	51.171.936	47.714.701	60.813.398
EU	4.779.647	6.556.734	11.597.568	10.966.049	7.554.388	18.362.677
Ex Soviet	457.078	437.962	8.043.816	9.398.641	4.216.179	10.269.783
Other	4.200	24.031	41.473	98.878	1.470.526	712.568
Total	67.942.662	103.774.392	145.006.781	162.335.502	143.700.467	179.956.759

Name of the Product:	FRESH VEGETABLE					
	Export in USD					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	7.411.678	17.103.832	29.378.801	46.229.075	37.321.987	37.302.295
Region	1.692.517	5.275.403	11.310.561	12.311.609	9.179.857	16.563.412
EU	1.314.873	3.777.491	4.538.210	5.800.229	3.435.262	8.098.286
Ex Soviet	44.769	64.945	2.613.394	3.796.170	1.264.480	4.266.380
Other	211	7.800	15.158	92.496	249.973	304.118
Total	10.464.048	26.229.471	47.856.125	68.229.579	51.451.559	66.534.491

Name of the Product:	FRESH VEGETABLE					
	Export in EUR					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	8.100.744	14.030.094	21.599.319	30.260.392	26.879.183	29.122.334
Region	1.880.190	4.259.390	8.156.668	8.539.925	6.459.496	12.408.238
EU	1.464.553	3.028.928	3.323.442	3.818.165	2.501.529	6.191.518
Ex Soviet	49.131	54.401	1.916.881	2.443.779	937.820	3.227.689
Other	215	6.299	11.136	59.223	188.346	221.855
Total	11.494.834	21.379.112	35.007.445	45.121.484	36.966.374	51.171.634

Export in EX-YU

Name of the product:	FRESH FRUITS					
	EXPORT IN KG					
Year	2000	2004	2007	2008	2009	2010
Slovenia	707.062	250.874	335.515	325.619	1.574.678	1.002.076
Croatia	666.611	2.280.950	2.433.324	3.074.677	3.521.152	2.056.812
Other part of Ex-Yu	39.682.927	40.197.506	58.668.217	56.013.429	47.639.392	66.320.891
Total Ex-YU	41.056.600	42.729.330	61.437.056	59.413.725	52.735.222	69.379.779

Name of the product:	FRESH FRUITS					
	EXPORT IN EUR					
Year	2000	2004	2007	2008	2009	2010
Slovenia	77.710	29.124	57.380	59.495	201.120	213.144
Croatia	87.151	323.607	382.273	811.911	689.824	792.186
Other part of Ex-Yu	2.592.628	3.358.702	7.215.038	6.562.147	5.054.397	7.357.321
Total Ex-YU	2.757.489	3.711.432	7.654.691	7.433.553	5.945.341	8.362.651

Name of the product:	FRESH FRUITS					
	EXPORT IN USD					
Year	2000	2004	2007	2008	2009	2010
Slovenia	72.873	35.736	79.420	93.191	285.691	274.490
Croatia	82.060	398.804	519.839	1.223.243	982.719	997.373
Other part of Ex-Yu	2.423.492	4.206.645	10.015.772	9.469.197	6.907.189	9.703.063
Total Ex-YU	2.578.425	4.641.185	10.615.031	10.785.631	8.175.599	10.974.926

Export by regions

Name of the Product:	FRESH FRUIT					
	Export in kg					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	41.056.600	42.729.330	61.437.056	58.675.545	51.793.722	69.379.779
Region	11.925.169	14.166.411	65.906.050	51.203.261	20.270.450	25.113.512
EU	3.426.454	2.292.060	15.103.262	11.878.510	8.801.772	19.241.827
Ex Soviet	111.456	704.342	2.849.954	4.830.287	2.655.703	3.977.664
Other	118.190	140.166	2.930.976	145.387	5.441.617	26.189.327
Total	56.637.869	60.032.309	148.227.298	126.732.990	88.963.264	143.902.109

Name of the Product:	FRESH FRUIT					
	Export in USD					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	2.578.425	4.641.185	10.615.031	10.427.162	7.551.911	10.974.926
Region	760.723	2.769.444	10.038.291	6.827.558	3.036.691	5.262.153
EU	338.011	490.755	4.516.804	3.458.692	1.832.542	5.192.044
Ex Soviet	13.138	319.780	1.619.182	2.622.241	1.586.661	2.883.047
Other	23.851	51.869	830.673	182.071	2.193.240	6.600.090
Total	3.714.148	8.273.032	27.619.980	23.517.724	16.201.045	30.912.260

Name of the Product:	FRESH FRUIT					
	Export in EUR					
Year	2000	2004	2007	2008	2009	2010
Ex-YU	2.757.489	3.711.432	7.654.691	7.173.923	5.516.167	8.362.651
Region	833.946	2.213.309	7.343.509	4.555.566	2.233.966	3.897.487
EU	362.361	402.425	3.220.504	2.248.873	1.289.146	4.027.634
Ex Soviet	15.239	261.250	1.187.660	1.720.626	1.126.710	2.244.155
Other	26.983	42.298	620.003	115.766	1.632.291	4.893.273
Total	3.996.018	6.630.715	20.026.367	15.814.754	11.798.280	23.425.200